

ORIGINAL INSTRUCTIONS

OPERATOR'S MANUAL

Discbine® 313

Discbine® 316

Disc Mower-Conditioner

Part number 47938391

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1 - GENERAL INFORMATION

Note to the owner

Introduction

Thank you for purchasing this NEW HOLLAND product.

You have purchased a dependable machine. With proper maintenance, service, and operation, you can expect to receive the quality performance and long-term operational service built into the machine.

Machine operator

Any person who operates this machine must have a valid local vehicle operating permit and all applicable local age work permits.

Operator's manual

This manual contains important information concerning the adjustment and maintenance of your new equipment.

NOTE: *Some images of the machine in this manual may differ slightly in some detail. Any variations will be similar enough for you to understand the information or instructions.*

Please have all operators read this manual carefully and keep this manual available for ready reference. Read this manual to make sure that you have a complete understanding of how to operate this machine safely, correctly, and for the most effective performance of the machine.

NOTE: *This operator's manual may be available in other languages; see your NEW HOLLAND dealer for ordering.*

Keep this manual protected and accessible on the machine whenever towing, transporting, or operating the machine. Keep this manual in a safe and protected area on the machine when the machine is in storage.

Throughout this operator's manual, references to the right-hand and left-hand sides of the machine are determined by facing the forward operating direction of travel.



This is the safety alert symbol. The safety alert symbol alerts you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

WARNING

Illustrations in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.

Replace all shields before operating the machine.

Failure to comply could result in death or serious injury.

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Your NEW HOLLAND dealer and service

Your NEW HOLLAND dealer has performed a pre-delivery setup, inspection, and testing to make sure that your machine operates at its best performance level.

Your NEW HOLLAND dealer will instruct you in the general operation of your new equipment. See "Delivery report – Owner copy" (10-1). Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your machine. New Holland Top Service is also available. Go to www.newholland.com.

Use only approved accessories and attachments designed for your machine. Consult your NEW HOLLAND dealer on changes, additions, or modifications that may be required for your machine. Do not make any unauthorized modifications to your machine.

Your NEW HOLLAND dealer carries a complete line of genuine NEW HOLLAND service parts. Our manufacture and inspection of NEW HOLLAND service parts ensures high quality and accurate fitting of any necessary replacement parts.

Be prepared to give your dealer the model and Product Identification Number (PIN) of your new equipment when ordering parts. Locate these numbers now and record them below. See "Product identification" (1-4) for the location of the model and PIN of your machine.

Please record the following information:

Model

Product Identification Number (PIN)

Date purchased

Improvements

CNH Industrial America LLC is continually striving to improve its products. We reserve the right to make improvements or changes when improvements or changes become practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

Intended use

The NEW HOLLAND **Discbine**® 300 series center-pivot disc mower-conditioner is intended for use in common grass and cereal crops. The unit comes with either a rotary flail-type or a roll-type conditioning system and is capable of laying crop in even windrows, or leaving an even spread of cut crop material across the cutting width.

Prohibited usage

Do not use this machine for any of the following:

- Cutting grass in park facilities and lawns
- Cutting grass on the sides of public roadways
- Harvesting corn
- Clearing forest or densely wooded areas

No parts or attachments should be fitted to this machine, which have not been released by NEW HOLLAND.

NOTE: *DO NOT use this machine for any purpose or in any manner other than as described in the manual, decals, or other product safety information provided with the machine. These materials define the machine's intended use.*

NOTE: *Use only approved accessories and attachments designed for your machine. Consult your NEW HOLLAND dealer for changes, additions, or modifications that may be required for your machine. Do not make any unauthorized modification to your machine.*

NOTE: *All persons who will be operating this machine shall possess a valid local vehicle-operating permit and/or other applicable local age work permits.*

Electro-Magnetic Compatibility (EMC)

Interference may arise as a result of add-on equipment that may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

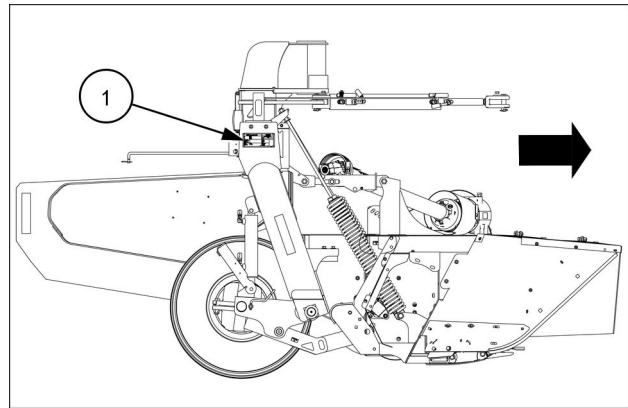
- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the machine
- The electro-magnetic field generated by the add-on system should not exceed **24 V/m** at any time and at any location in the proximity of electronic components
- The add-on equipment must not interfere with the functioning of the on board electronics

Failure to comply with these rules will render the NEW HOLLAND warranty null and void.

Product identification

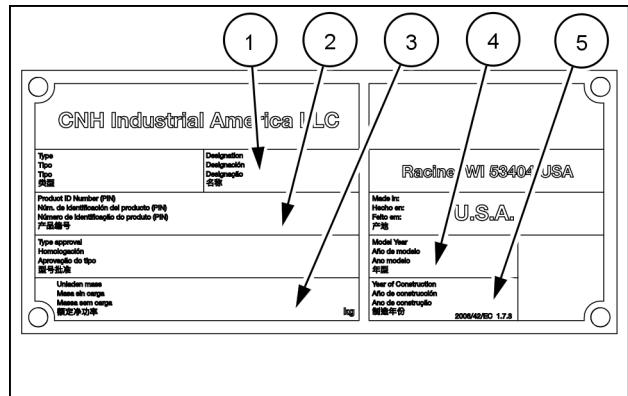
Product Identification Number (PIN)

The location of the disc mower-conditioner Product Identification Number (PIN) plate (1) is on the right-hand side of the trail frame.



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- (1) – Model
- (2) – PIN number
- (3) – Weight
- (4) – Model year
- (5) – Year of construction

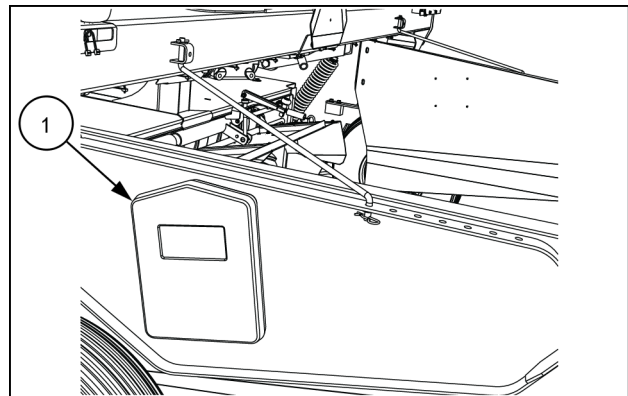


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Operator's manual storage on the machine

When you are not using the operator's manual, store the operator's manual in the plastic clamshell-storage case (1).

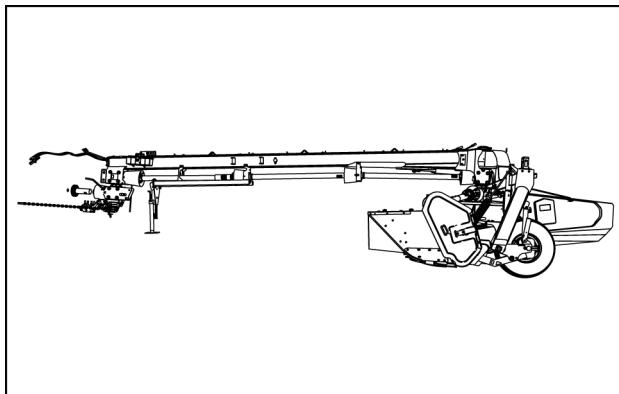
The storage case is mounted on the left-hand windrow shield.



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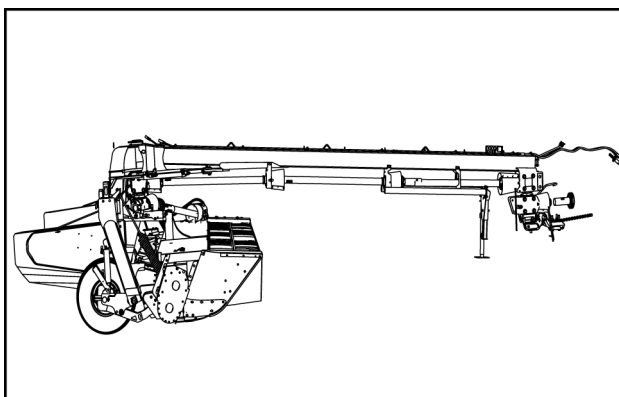
Machine orientation

NOTE: To determine the left-hand side and the right-hand side of the machine, stand behind the machine and face the direction of travel.



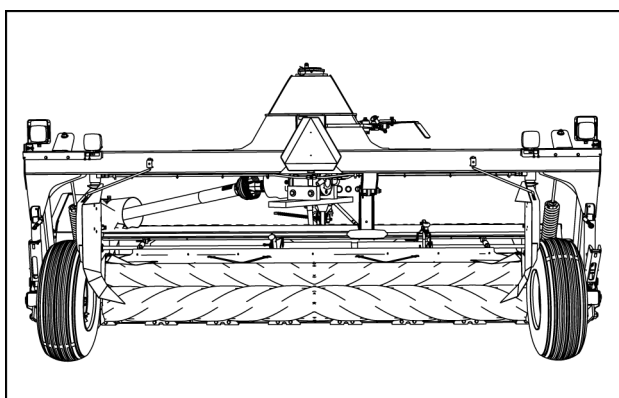
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Left-hand side view



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Right-hand side view



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Rear view

2 - SAFETY INFORMATION

Safety rules and signal word definitions


Personal safety





This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules – Personal safety

General safety rules

Use caution when you operate the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol or drugs, or while you are otherwise impaired.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop the engine, remove the key, and relieve the pressure before you connect or disconnect fluid lines.
- Make sure that all components are in good condition. Tighten all connections before you start the engine or pressurize the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or while components are in motion.

Make sure that all guards and shields are in good condition and properly installed before you operate the machine. Never operate the machine with shields removed. Always close access doors or panels before you operate the machine.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Always keep windows, mirrors, all lighting, and Slow-Moving Vehicle (SMV) emblem clean to provide the best possible visibility while you operate the machine.

Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.

Before you leave the machine:

1. Park the machine on a firm, level surface.
2. Put all controls in neutral or park lock position.
3. Engage the parking brake. Use wheel chocks if required.
4. Lower all hydraulic equipment — Implements, header, etc.
5. Turn off the engine and remove the key.

WARNING

**Some components may continue to run down after you disengage drive systems.
Make sure all drive systems are fully disengaged.
Failure to comply could result in death or serious injury.**

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When, due to exceptional circumstances, you would decide to keep the engine running after you leave the operator's station, then you must follow these precautions:

1. Bring the engine to low idle speed.
2. Disengage all drive systems.
3. Shift the transmission into neutral.
4. Apply the parking brake.

General maintenance safety

Keep the area used for servicing the machine clean and dry. Clean up spilled fluids.

Service the machine on a firm, level surface.

Install guards and shields after you service the machine.

Close all access doors and install all panels after servicing the machine.

Do not attempt to clean, lubricate, clear obstructions, or make adjustments to the machine while it is in motion or while the engine is running.

Always make sure that working area is clear of tools, parts, other persons and pets before you start operating the machine.

Unsupported hydraulic cylinders can lose pressure and drop the equipment, causing a crushing hazard. Do not leave equipment in a raised position while parked or during service, unless the equipment is securely supported.

Jack or lift the machine only at jack or lift points indicated in this manual.

Incorrect towing procedures can cause accidents. When you tow a disabled machine follow the procedure in this manual. Use only rigid tow bars.

Stop the engine, remove the key, and relieve pressure before you connect or disconnect fluid lines.

Stop the engine and remove the key before you connect or disconnect electrical connections.

Replace damaged or worn tubes, hoses, electrical wiring, etc.

When welding, follow the instructions in the manual. Always disconnect the battery before you weld on the machine. Always wash your hands after you handle battery components.

⚠️ Wheels and tires ⚠️

Make sure that tires are correctly inflated. Do not exceed any recommended load or pressure. Follow the instructions in the manual for proper tire inflation.

Tires are heavy. Handling tires without proper equipment could cause death or serious injury.

Never weld on a wheel with a tire installed. Always remove the tire completely from the wheel prior to welding.

Always have a qualified tire technician service the tires and wheels. If a tire has lost all pressure, take the tire and wheel to a tire shop or your dealer for service. Explosive separation of the tire can cause serious injury.

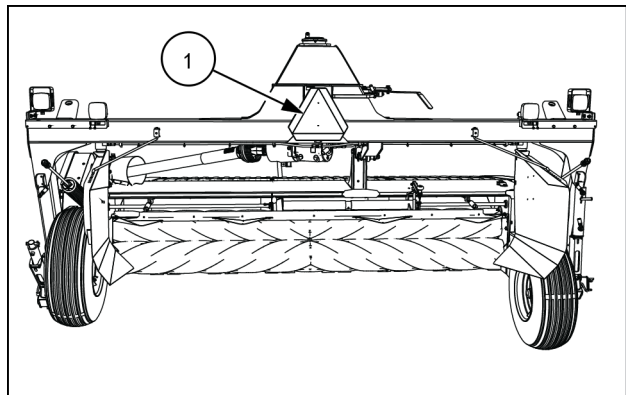
DO NOT weld to a wheel or rim until the tire is completely removed. Inflated tires can generate a gas mixture with the air that can be ignited by high temperatures from welding procedures performed on the wheel or rim. Removing the air or loosening the tire on the rim (breaking the bead) will NOT eliminate the hazard. This condition can exist whether tires are inflated or deflated. The tire MUST be completely removed from the wheel or rim prior to welding the wheel or rim.

⚠️ Driving on public roads and general transportation safety ⚠️

Comply with local laws and regulations.

Use appropriate lighting to meet local regulations.

Make sure that the Slow-Moving Vehicle (SMV) emblem (1) is visible.



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Make sure that the brake pedal latch is engaged. You must lock brake pedals together for road travel.

Use safety chains for trailed equipment when safety chains are provided with machine or equipment.

Lift implements and attachments high enough above ground to prevent accidental contact with road.

When you transport equipment or a machine on a transport trailer, make sure that it is properly secured. the Slow-Moving Vehicle (SMV) emblem on the equipment or machine is covered while being transported on a trailer.

Be aware of overhead structures or power lines and make sure that the machine and/or attachments can pass safely under.

Travel speed should be such that you maintain complete control and machine stability at all times.

Slow down and signal before turning.

Pull over to allow faster traffic to pass.

Follow correct towing procedure for equipment with or without brakes.

⚠ Power Take-Off (PTO) ⚠

Power Take-Off (PTO) driven machinery can cause death or serious injury. Before you work on or near the PTO shaft or service or clear the driven machine, put the PTO lever in the disengage position, stop the engine, and remove the key.

Whenever a PTO is in operation, a guard must be in place to prevent death or injury to the operator or bystanders.

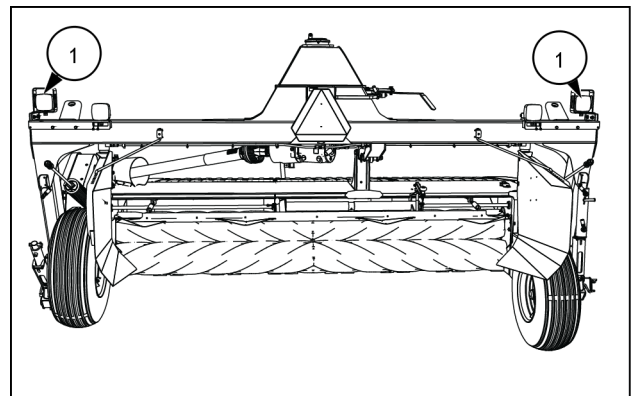
When doing stationary PTO work, keep clear of all moving parts and make sure that appropriate guards are in place.

Never use a spline adaptor:

- Match the right tractor PTO spline and speed with the PTO drive shaft provided with an implement. This will assure proper geometry and operating speed.
- Never operate **540 RPM** implements at **1000 RPM**.
- Never operate **1000 RPM** implements at **540 RPM**.
- Use of PTO adaptors will void the warranty of the drive shaft, and the PTO drive train of the machine and implement.
- For correct hitch geometry see the relative information for your machine:
 - See “Machine preparation – Two-point swivel hitch with tractor quick-hitch” (3-2).
 - See “Tractor attachment – Two-point swivel hitch” (3-4).
 - See “Machine preparation – Two-point swivel hitch” (3-5).
 - See “Tractor attachment – Two-point swivel hitch with tractor quick-hitch” (3-7).
 - See “Machine preparation – Drawbar swivel hitch” (3-9).
 - See “Tractor attachment – Drawbar swivel hitch” (3-10).

⚠ Reflectors and warning lights ⚠

You must use flashing amber warning lights (1) when you operate equipment on public roads.



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⚠ Personal Protective Equipment (PPE) ⚠

Wear Personal Protective Equipment (PPE) such as hard hat, eye protection, heavy gloves, hearing protection, protective clothing, etc.

⚠ Do Not Operate tag ⚠

Before you start servicing the machine, attach a ‘Do Not Operate’ warning tag to the machine in an area that will be visible.

⚠ Hazardous chemicals ⚠

If you are exposed to or come in contact with hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolant, etc. required for the function of your machine can be hazardous. They may be attractive and harmful to domestic animals as well as humans.

Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product, safe handling and storage procedures, first aid measures, and procedures to take in the event of a spill or accidental release. MSDS are available from your dealer.

Before you service your machine check the MSDS for each lubricant, fluid, etc. used in this machine. This information indicates the associated risks and will help you service the machine safely. Follow the information in the MSDS, and on manufacturer containers, as well as the information in this manual, when you service the machine.

Dispose of all fluids, filters, and containers in an environmentally safe manner according to local laws and regulations. Check with local environmental and recycling centers or your dealer for correct disposal information.

Store fluids and filters in accordance with local laws and regulations. Use only appropriate containers for the storage of chemicals or petrochemical substances.

Keep out of reach of children or other unauthorized persons.

Applied chemicals require additional precautions. Obtain complete information from the manufacturer or distributor of the chemicals before you use them.

Utility safety

Make sure that the machine has sufficient clearance to pass in all directions. Pay special attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety. Contact local authorities or utilities to obtain safe clearance distances from high voltage power lines.

Retract raised or extended components, if necessary. Remove or lower radio antennas or other accessories. Should a contact between the machine and an electric power source occur, the following precautions must be taken:

- Stop the machine movement immediately.
- Apply the parking brake, stop the engine, and remove the key.
- Check if you can safely leave the cab or your actual position without contact with electrical wires. If not, stay in your position and call for help. If you can leave your position without touching lines, jump clear of the machine to make sure that you do not make contact with the ground and the machine at the same time.
- Do not permit anyone to touch the machine until power has been shut off to the power lines.

Electrical storm safety

Do not operate machine during an electrical storm.

If you are on the ground during an electrical storm, stay away from machinery and equipment. Seek shelter in a permanent, protected structure.

If an electrical storm should strike during operation, remain in the cab. Do not leave the cab or operator's platform. Do not make contact with the ground or objects outside the machine.

Basic operating safety rules – Precautionary statements

Carefully review the procedures given in this operator's manual with all of the operators of the machine. Understanding the operations and safety content is important. All operators must follow the safety precautions.

A careful operator is the best operator. You can avoid most accidents by observing and adhering to all of the precautions in this operator's manual.

Only age appropriate individuals, that have read the operator's manual, understand the content, are instructed on the machine operation, and can demonstrate responsible operation knowledge and practice may operate this machine.

To help prevent accidents, read the following precautions before you operate this machine.

- Never operate the machine with any shield open or raised. Always operate the disc mower-conditioner with the shields installed, lowered or closed, and the header cutterbar curtains overlapping.
- Operate the disc mower-conditioner with an enclosed cab tractor, for protection from flying objects that can be propelled from the cutterbar.
- Fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury.
 - Always protect the skin and eyes from escaping fluid under pressure. Before you disconnect lines or fittings, make sure that you operate the tractor control valves to release all of the pressure in the system.
 - Before you apply pressure to the system, make sure that all of the connections are tight and that the hoses and the connections are not damaged.
 - If you are injured by escaping fluid, obtain medical assistance immediately. A serious infection or physical reaction can develop if medical treatment is not administered immediately.
- If you must change the hydraulic couplers, make sure that you bleed off any residual pressure slowly.
- Before you swing the tongue, make sure that the machine will clear any obstructions. make sure that bystanders are clear of the machine when you swing the tongue. Air in the system or a high hydraulic flow rate can cause erratic operation.
- When you disconnect and later re-attach the machine to a standard electrical socket on the propelling vehicle, the brake light circuit must be reconnected to function.
- Engage the header lift lock channels when ever the machine is raised position such as for parking, service, or being prepared for road transport.
 - Failure to engage the header lift lock channels presents a crush hazard condition, or when you transport the machine, a failure of the hydraulic could cause the machine to drop onto the pavement creating a loss of control hazard.
 - See "Header lift lock channels" (4-6).
- Engage the tongue swing cylinder lock prior to road transport.
 - Failure to engage the tongue swing cylinder lock when you transport the machine could cause the machine to swing to the left-hand side into oncoming traffic, bridge or overpass abutments, other roadside obstacles, or ditches, if the tractor hydraulics are accidentally engaged during transport.
 - See "Tongue swing cylinder lock" (4-5).
- Never adjust or make a repair with the disc mower-conditioner running.
 1. Disengage the Power Take-Off (PTO).
 2. Shut off the tractor engine and remove the key before you attempt to make adjustments or service the machine.
 3. Wait for all rotating parts to stop before you attempt to make adjustments or service the machine.
 4. Attempting to open any shield or effect an adjustment or service seriously exposes yourself or a bystander to the rotating knife-tip pathways, bodily entanglement, or pinching and crushing hazards.
 5. Opened shields while the machine is operating allows stones or other foreign objects that come in contact with the cutterbar to become flying object that can be deflected toward the operator or bystanders, resulting in physical injury.
- Immediately replace any header curtain that is torn or has a hole puncture.

- Tilt the cutterbar rearward to raise the cutting knives in fields where stones and foreign objects are present. The rearward tilt of the knives will act, to minimize debris deflected from the knives, and to reduce knife damage. Stones or other foreign objects that come in contact with the cutterbar to become flying object that can be deflected toward the operator or bystanders, resulting in physical injury.
- Stand clear of the cutter disc knife-tip paths at the front and sides of the header. The rotating knives on the cutter discs can cause serious bodily injury.
- Do not attempt to remove material from the disc mower-conditioner while it is in operation. Shut the tractor off and allow the rotating discs to stop before you leave the tractor.
- Always operate the disc mower-conditioner with the covers and shields in place. Do not lean against or stand on the covers or shields.
- Make sure that you engage the header lift channel locks before you work on a raised header.
- Do not attempt to remove a crop blockage from the conditioning rolls before you first relieve the roll pressure. The applied roll pressure can cause the top conditioning roll to move downward suddenly and could cause personal injury.
- You must rest the header on the ground or suspend the header in the lifted (raised) position with the header lift lock channels engaged before you perform lubrication or maintenance on the machine.
- Replace damaged knives, knife hardware, or discs immediately to prevent an accident. Wear gloves to prevent injury.
- The bottom leading edge of worn discs can become very sharp. Wear gloves to prevent injury.
- Replace cracked or severely deformed knives immediately to prevent an accident.
- Before you disconnect the lift cylinder hose, make sure that the header is resting on the ground or on the header lift locks.
- The shields and curtains are for your protection. Always make sure that you install and close all shields after you perform repairs, make adjustments, or after you lubricate the machine.
- Replace any severely worn or damaged flails. Diligent maintenance action will prevent an accident, damage to the disc mower-conditioner, and the possibility of leaving metal in the windrow.

Shielding

The shielding on this machine is designed for the safety and protection of the operator, bystanders, and domestic animals.

You must properly install all shielding onto the machine, and make sure that it is in the designated closed, lowered, or covering position before you engage power to the machine for operation.

The shields protect against hazards such as:

- Entanglement hazards:
 - Power Take-Off (PTO) driveline
 - Conditioner drive belt
 - Conditioner rolls or flail rotor
- Flying objects hazards
- Cutting hazards

Header cutterbar access shields

⚠ WARNING

**Flying objects! Machines with rotary discs can fling foreign objects toward the operator.
Keep all skirts and shields in place.
Failure to comply could result in death or serious injury.**

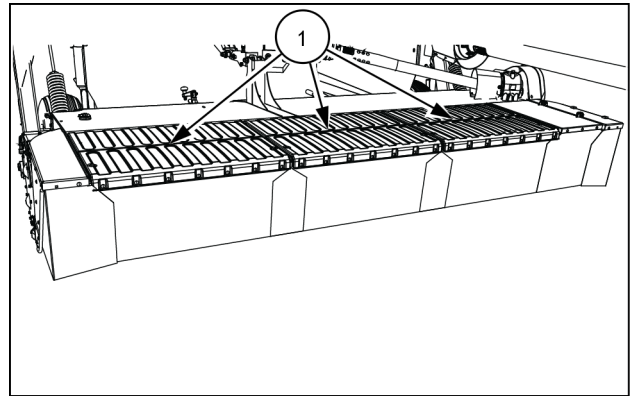
W0024A

The header cutterbar access shields provide protection from contact with the cutterbar and flying objects.

NOTICE: You must lower the shields to the “closed” position before you operate the machine to prevent damage to the shields.

Header cutterbar access shields (1) provide easy access to the cutterbar.

The header cutterbar access shields are manufactured of lightweight High-Density Polyethylene (HDPE) material. The shields open and close by a bi-fold design to make access to the cutterbar easier and safer.



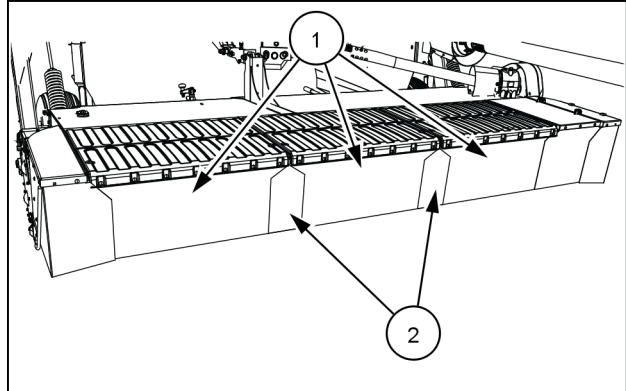
NHIL13HT00311AA 1

Header cutterbar curtains

The header cutterbar curtains provide protection from contact with the cutterbar and flying objects.

The header cutterbar curtains attach to the header cutterbar access shields and move along with the bi-fold action when you open and close the cutterbar access shields.

The cutterbar curtains (1) have a material overlap (2) that keeps the curtains in place without the use of clips or magnets.

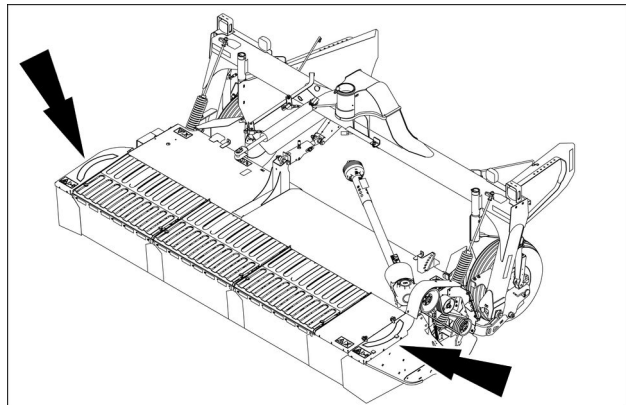


NHIL13HT00311AA 2

Knife-tip path side shields

The knife-tip path side shields provide protection from flying objects and from contact with the disc knives.

Knife-tip path side shields

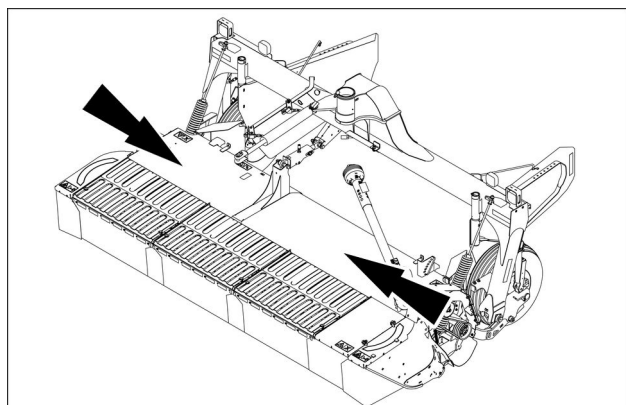


NHIL13HT00485AA 3

Header conditioner shielding

The header conditioner shielding spans the width of the header over the conditioner to provide protection from contact with the flail rotor, the conditioner rolls, and flying objects.

Header conditioner shielding



NHIL13HT00485AA 4

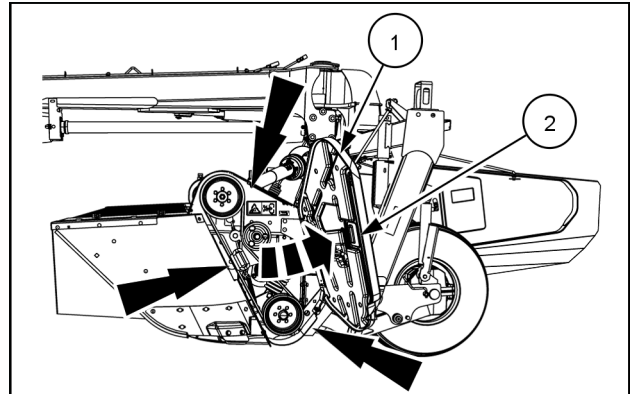
Conditioner drive belt side shielding and door shield

The conditioner drive belt side shielding and door shielding provides protection from entanglement with the rotating conditioner drive belt and the sheaves.

The drive belt side shielding completely surrounds the drive belt operating area to prevent accidental contact with the drive belt and the sheaves.

Pull on the handle **(2)** to open the conditioner drive belt door shield **(1)** on the left-hand side of the machine.

A gas strut secures the door shield in both the “opened” and “closed” positions.



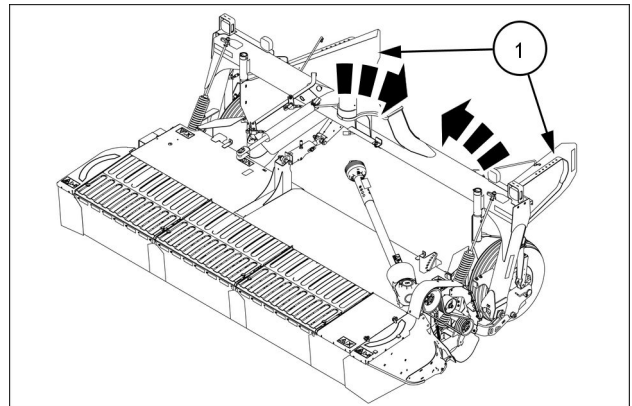
NHIL16HT00028AA 5

Windrow shields

Windrow shields provide protection from thrown objects in addition to shaping the windrow.

The windrow shields protect bystanders from crop material or foreign objects that eject from the conditioner rolls or the flail conditioner rotor, and from walking into the windrow area from the sides of the machine.

You can fold the windrow shields **(1)** inward for storage.



NHIL13HT00485AA 6

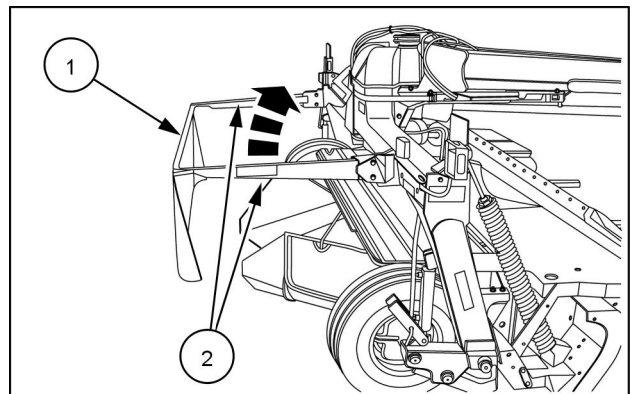
Flail curtain shield – Flail conditioner machines only

The flails of the flail conditioner rotor rotate at a high rotational speed and are exposed to foreign objects that can damage the flails, causing broken metal pieces of the flail to become dangerous flying objects. The flail curtain shield protects bystanders from crop material, foreign objects, and broken pieces of ejected

The flail curtain shield **(1)** protects bystanders from crop material, foreign objects, and broken flails pieces ejected from the rear of the machine.

The flail curtain shield is shown in the operating position.

The flail curtain support arms **(2)** can be rotated upward to provide additional clearance when you store the machine.



NHIL16HT00074AA 7

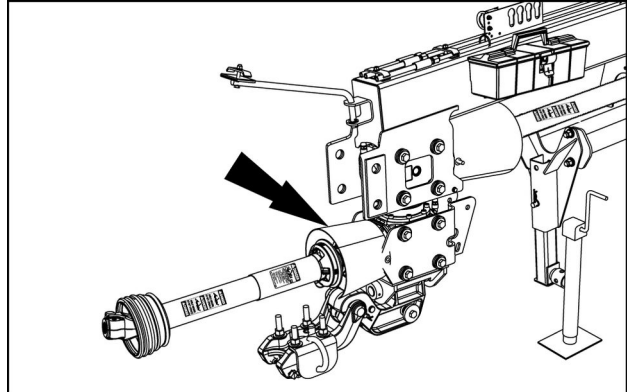
Power Take-Off (PTO) trumpet shields

The Power Take-Off (PTO) trumpet shields provide entanglement hazard protection at the PTO yoke connection points along the tongue and on the header drive PTO.

For access to a PTO yoke, press on opposite sides of the trumpet shield. The trumpet shield temporarily deforms to allow the two engagement points to disengage, and then the trumpet shield slides away from shielding the yoke.

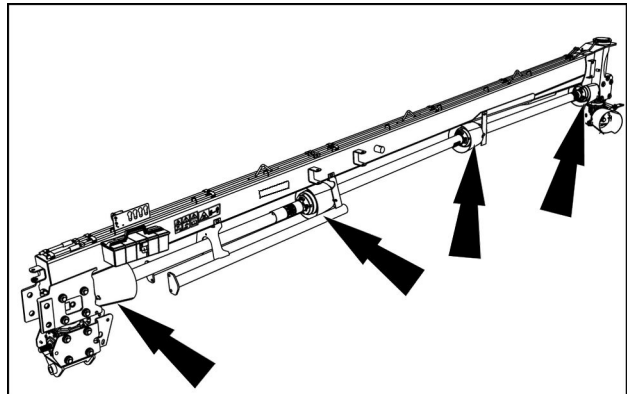
Trumpet shield locations:

- Primary PTO at the hitch



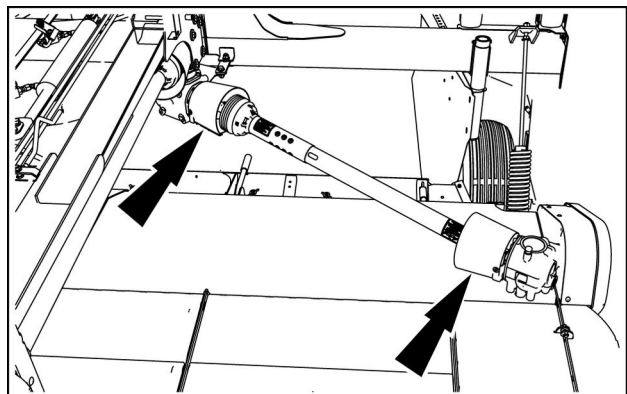
NHIL13HT00494AA 8

- Tongue secondary drive PTO locations.



NHIL13HT00489AB 9

- Header cutterbar and conditioner PTO



NHIL13HT00500AA 10

Ecology and the environment

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances. Your NEW HOLLAND dealer can also provide assistance.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your NEW HOLLAND dealer or air-conditioning specialist has a special extractor for this purpose and can recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. NEW HOLLAND strongly recommends that you return all used batteries to a NEW HOLLAND dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



NHIL14GEN0038AA 1

Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Safety signs

The application of the following safety signs to your machine serve as a guide for your safety and for those working with you. Walk around the machine and note the content and location of these safety signs before operating your machine.

Keep safety signs clean and legible. Clean safety signs with a soft cloth, water, and gentle detergent.

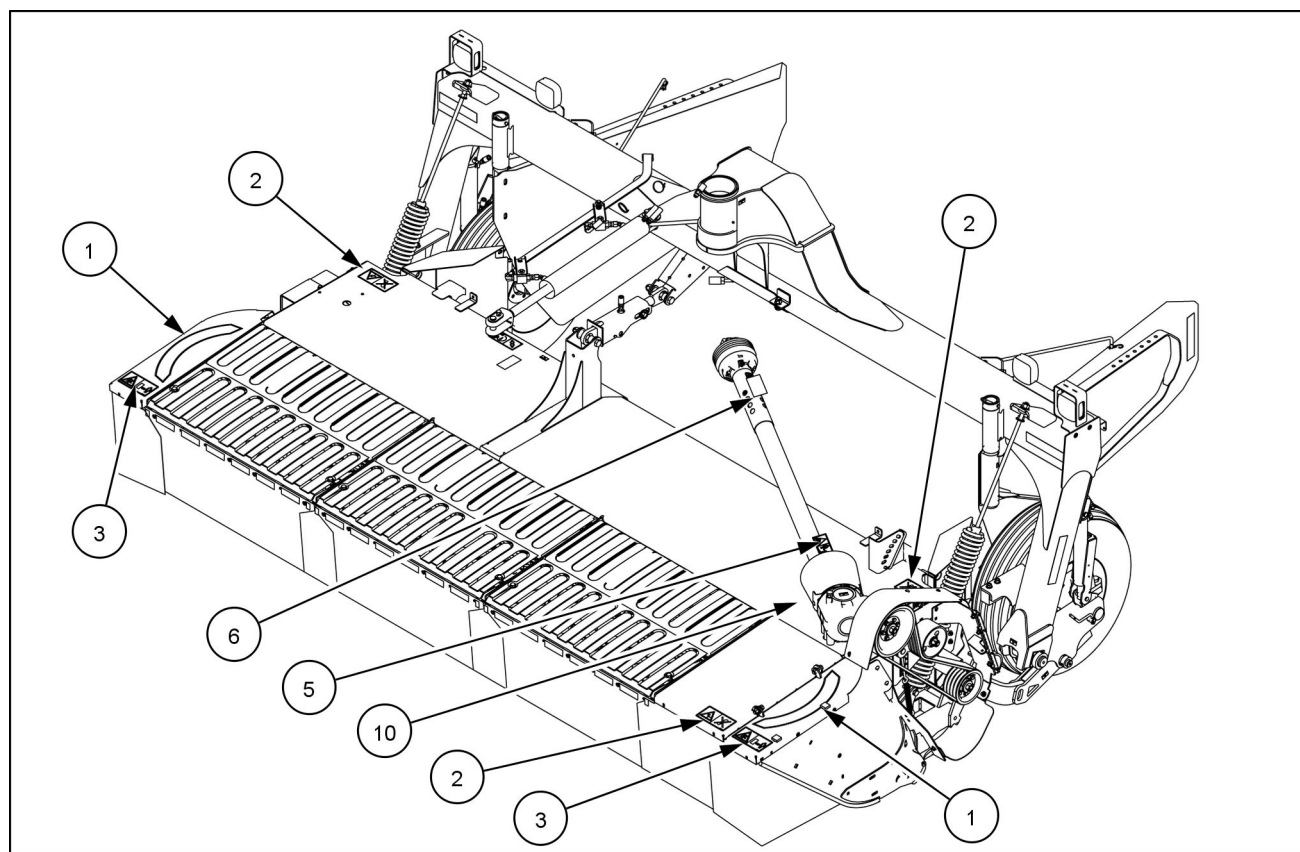
NOTICE: Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove safety signs.

Replace all safety signs that are damaged, missing, painted over, or illegible. If a safety sign is on a part that you or your dealer replace, make sure that you or your dealer install the safety sign on the new part. See your dealer for replacement safety signs.

Safety signs that display the “Read operator’s manual” symbol direct you to the operator’s manual for further information regarding maintenance, adjustments, or procedures for particular areas of the machine. When a safety sign displays this symbol, consult the appropriate page of the operator’s manual.

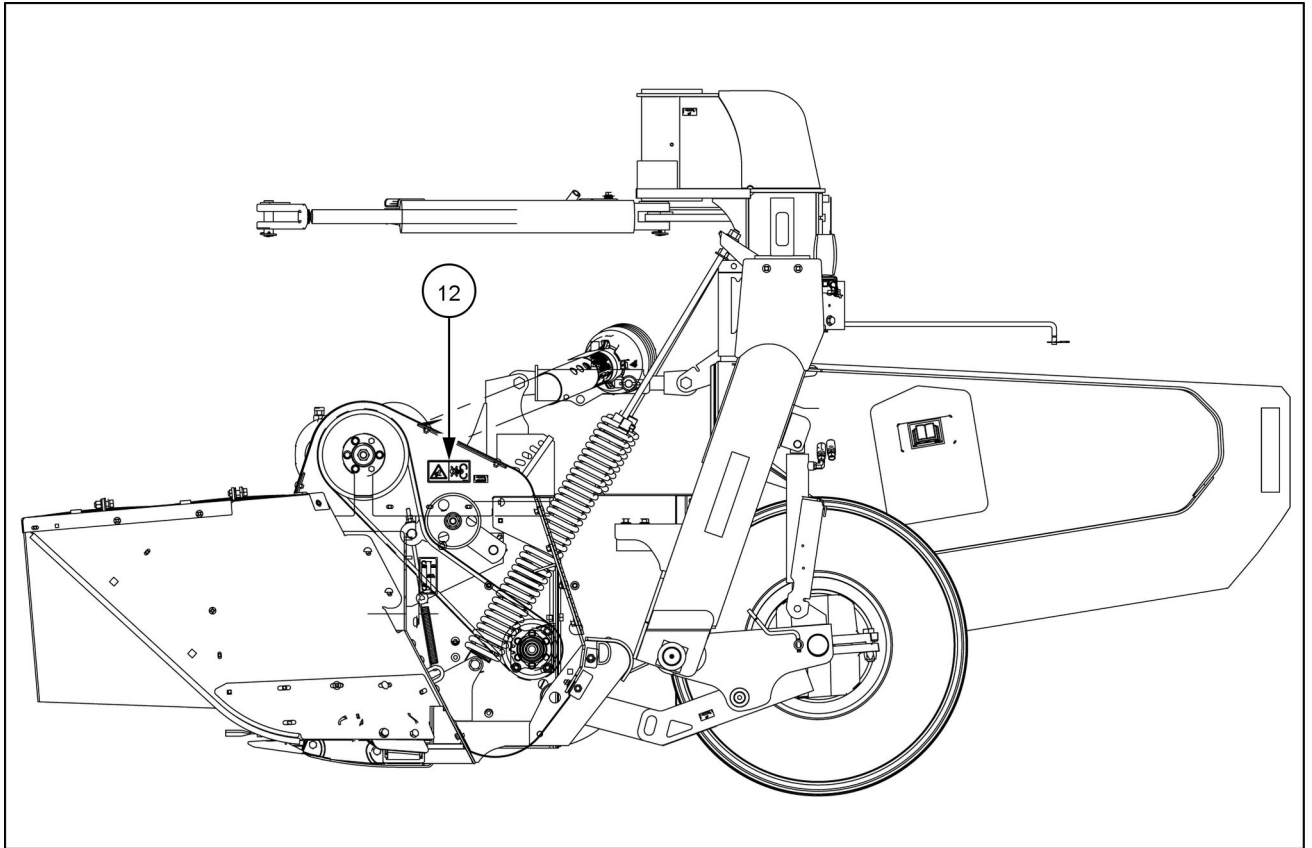


Safety signs that display the “Read service manual” symbol direct you to the service manual. If you doubt your ability to perform service operations, contact your dealer.



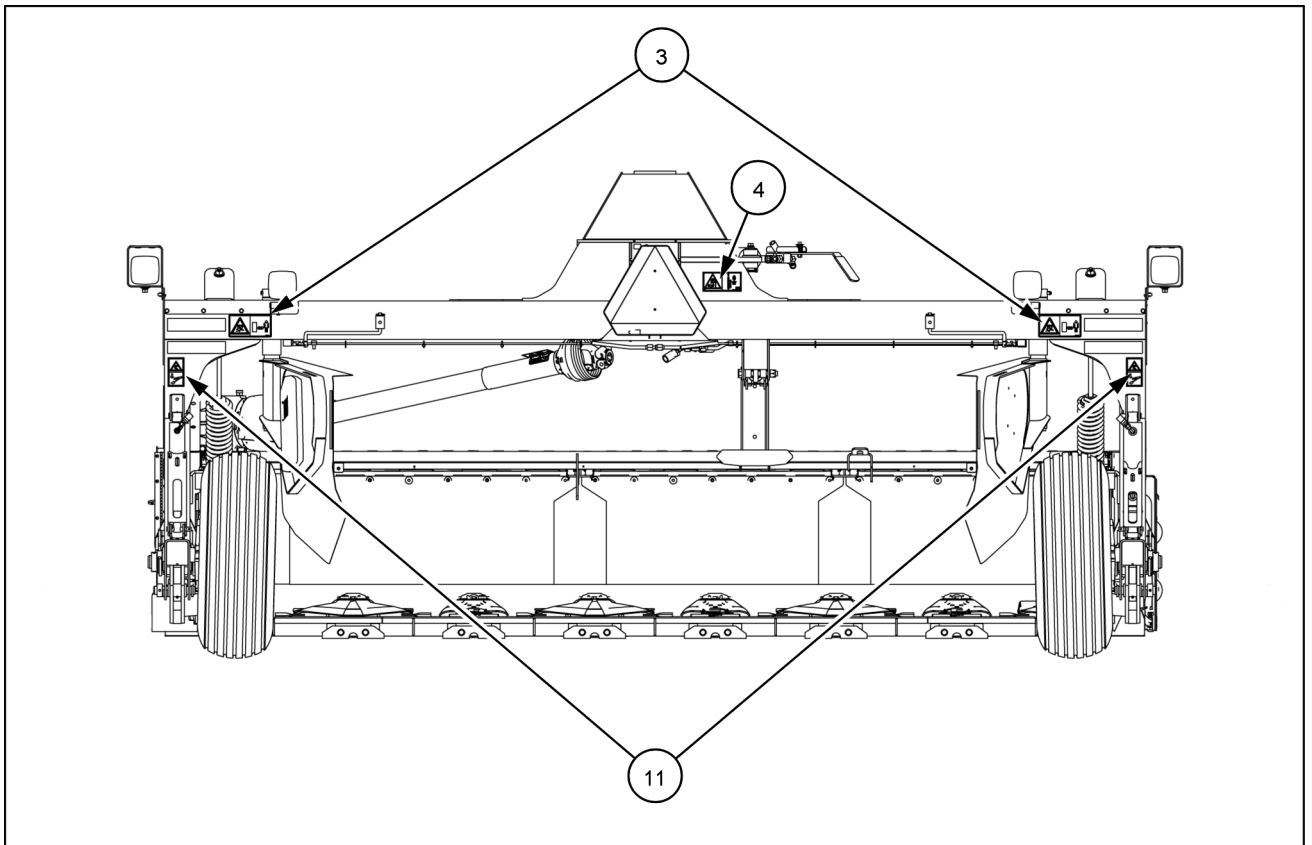
NHIL13HT00485AA 1

Front isometric view



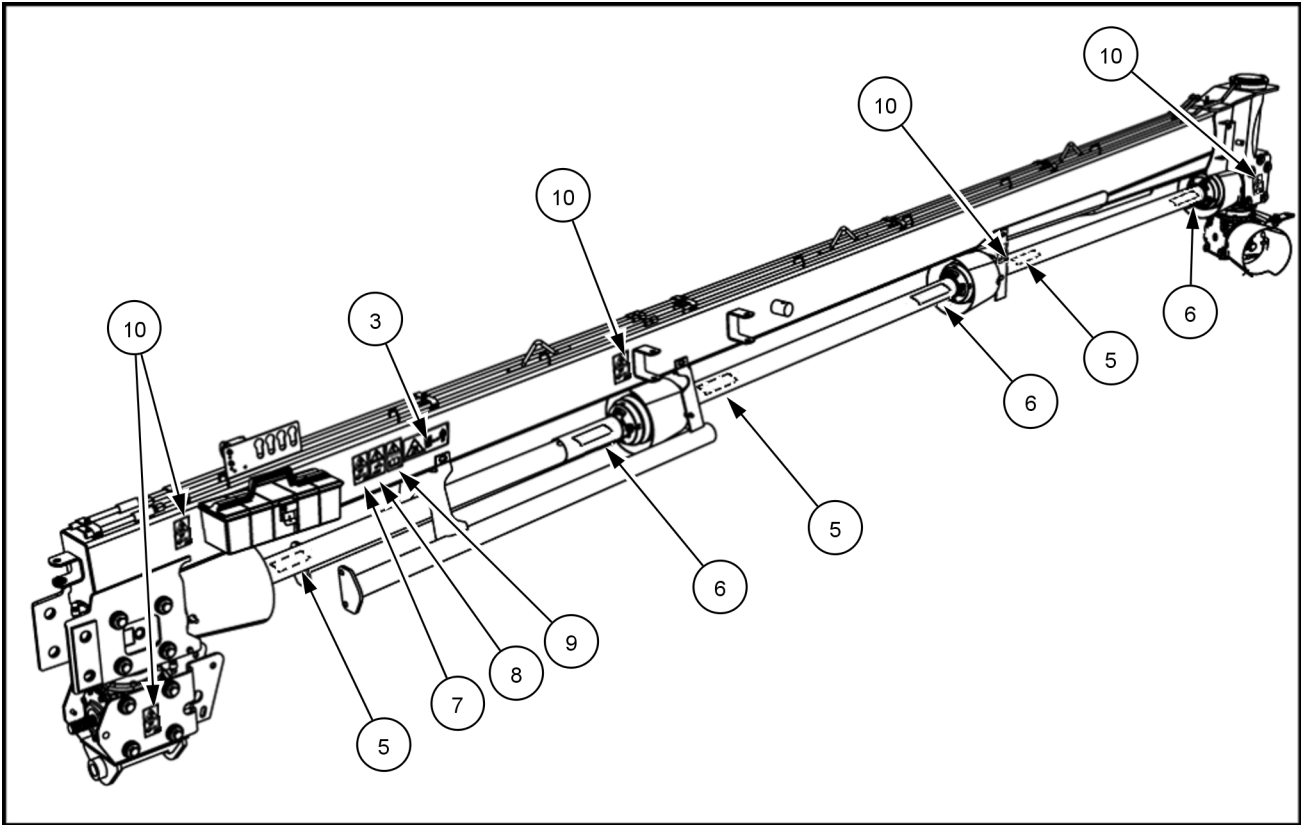
NHIL13HT00486AA 2

Left-hand side view



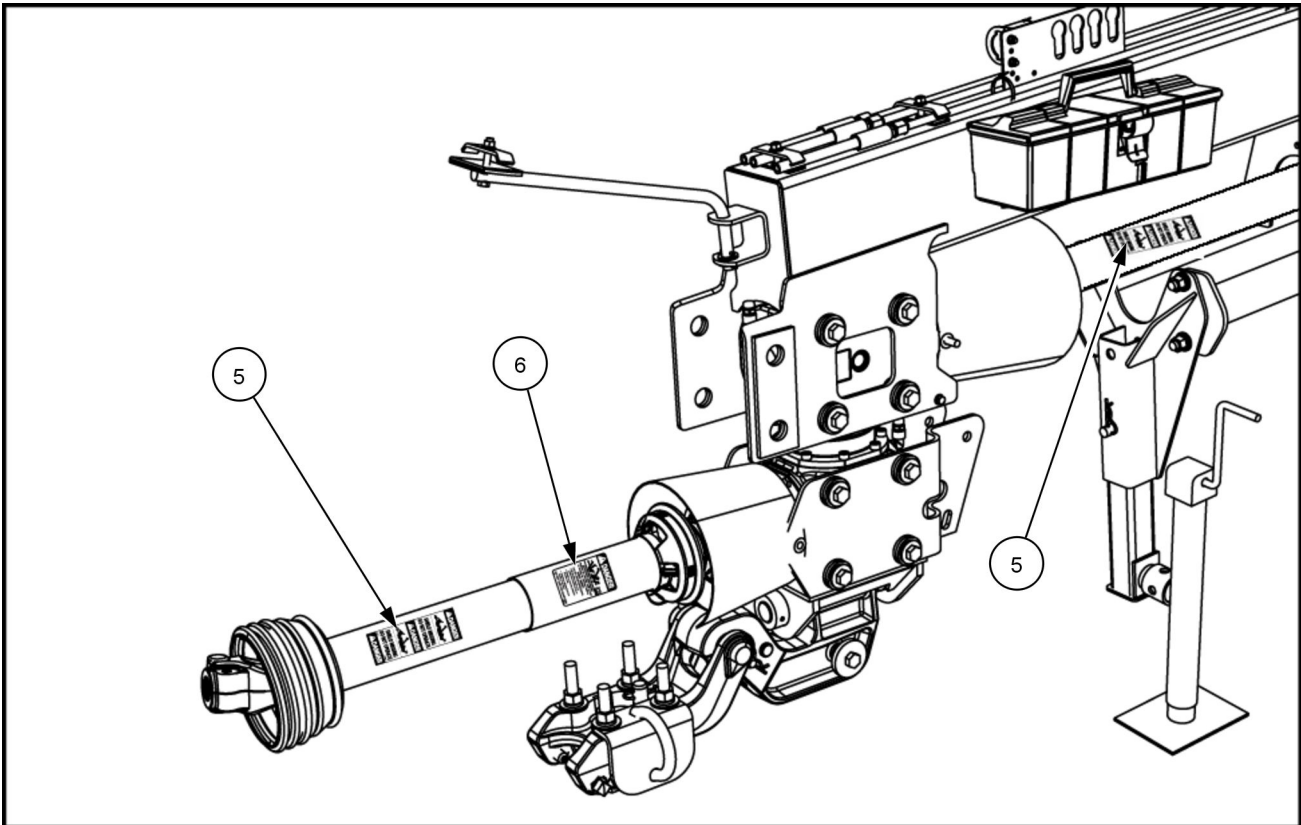
NHIL16HT00021FA 3

Rear view



NHIL16HT00054AA 4

Tongue – Left-hand side view



NHIL13HT00494AA 5

Primary Power Take-Off

(1)

Description:



WARNING

KNIFE-TIP PATH – CUTTING HAZARD! STAND CLEAR

While the equipment is in operation, stand clear of the knife path.

Failure to comply could result in death or serious injury.

Quantity: 2

Part number:

84586897

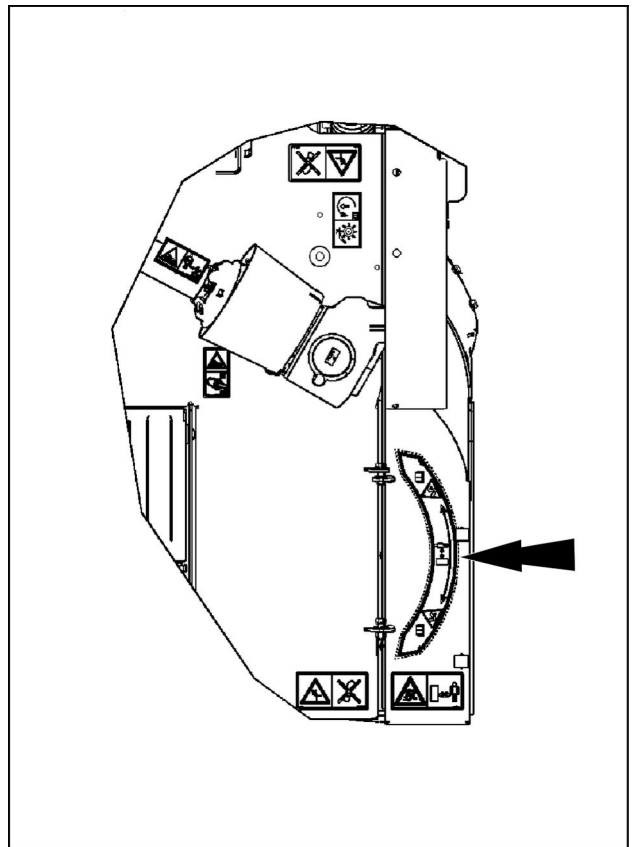


84586897_C 6

Location 1:

4.0 m (13 ft) units

Located on the left-hand side shield.

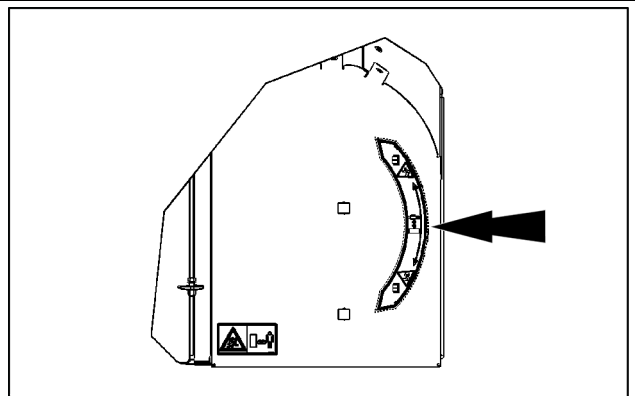


NHIL16HT00031BA 7

Location 1:

4.9 m (16 ft) units

Located on the left-hand side shield.



NHIL16HT00014AA 8

Description:**WARNING****KNIFE-TIP PATH – CUTTING HAZARD! STAND CLEAR**

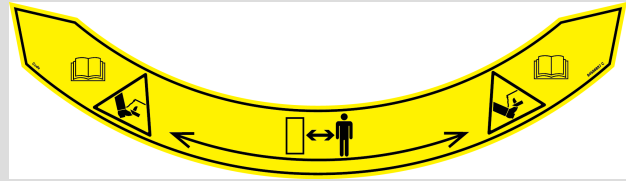
While the equipment is in operation, stand clear of the knife path.

Failure to comply could result in death or serious injury.

Quantity: 2

Part number:

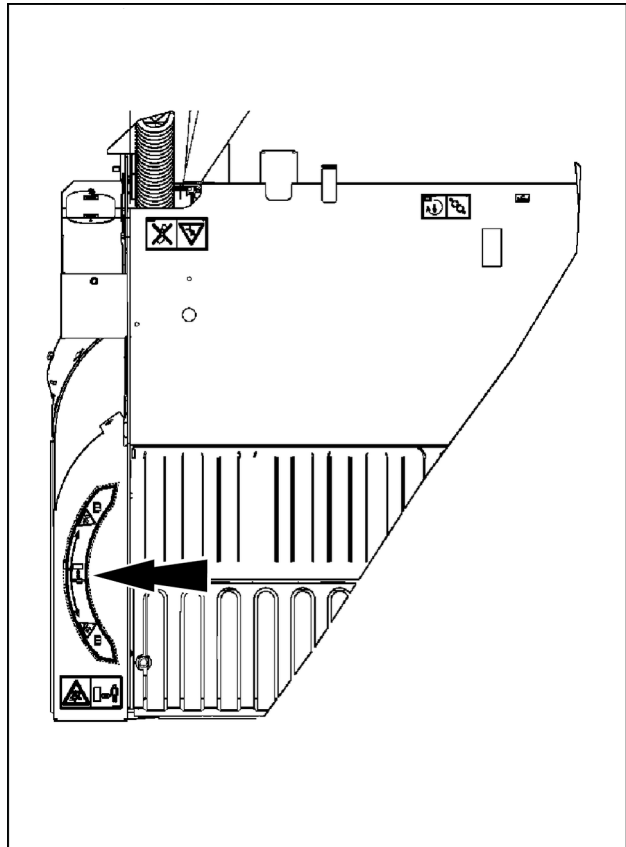
84586897



84586897_C 6

Location 2:**4.0 m (13 ft) units**

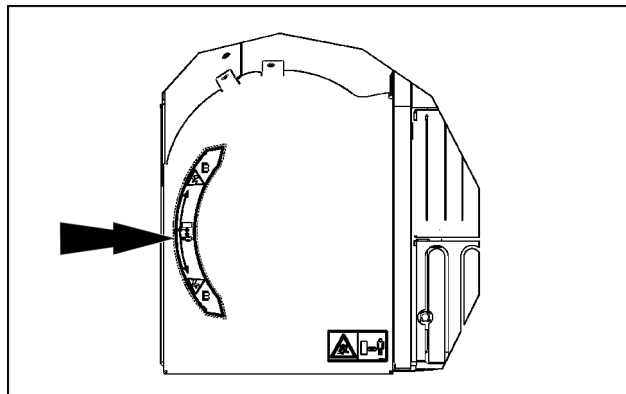
Located on the right-hand side shield.



NHIL16HT00032BA 9

Location 2:**4.9 m (16 ft) units**

Located on the right-hand side shield.



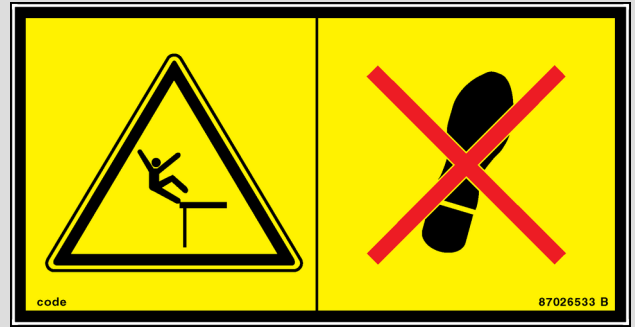
NHIL16HT00013AA 10

(2)

Description:**FALL HAZARD! NO STEP**

DO NOT use this area as a step or platform.
Failure to comply could result in death or serious injury.

Quantity: 3

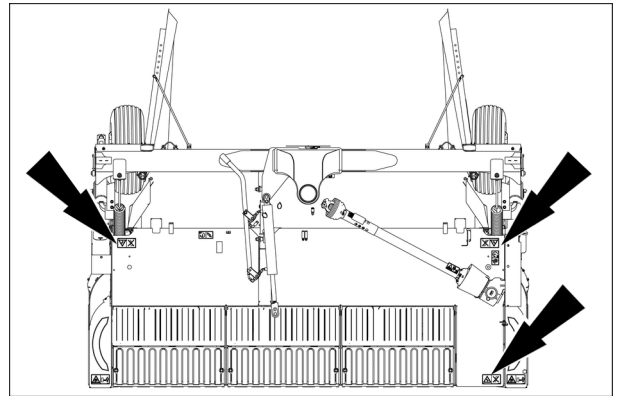
Part number:**87026533**

87026533_B 11

NOTE: Figure 12 represents a 4.0 m (13 ft) disc mower conditioner

Location 1, 2, and 3:**4.0 m (13 ft) and 4.9 m (16 ft) units**

- Located on the top right-hand side of the conditioner shield.
- Located on the top left-hand side of the conditioner shield.
- Located on the top of the front left-hand cutterbar shield.



NHIL13HT00484AA 12

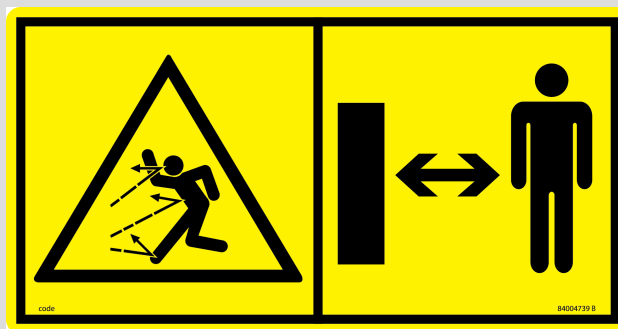
(3)

Description:**WARNING****FLYING OBJECT HAZARD!****STAND CLEAR**

Set the machine cutting height to clear obstructions and stones.

Machine can throw stones and debris toward operator or bystanders.

Failure to comply could result in death or serious injury.



84004739_B 13

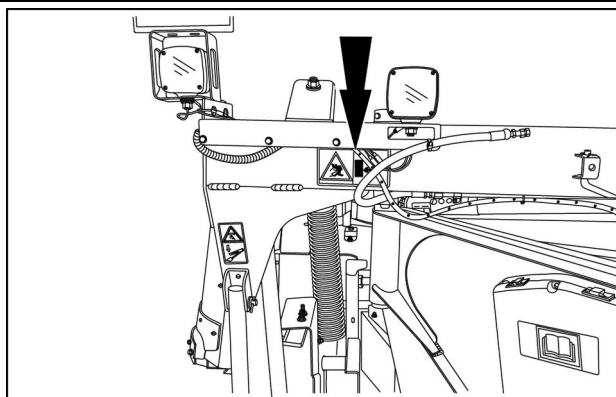
Quantity: 5

Part number:

84004739

Location 1:

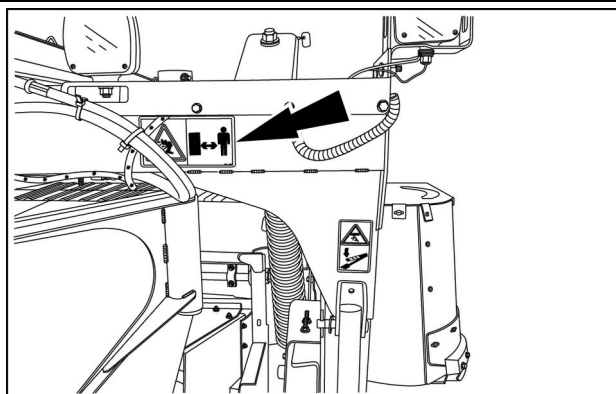
Located on the left-hand side of the trail frame.



NHIL13HT00433AA 14

Location 2:

Located on the right-hand side of the trail frame.



NHIL13HT00432AA 15

Description:



WARNING

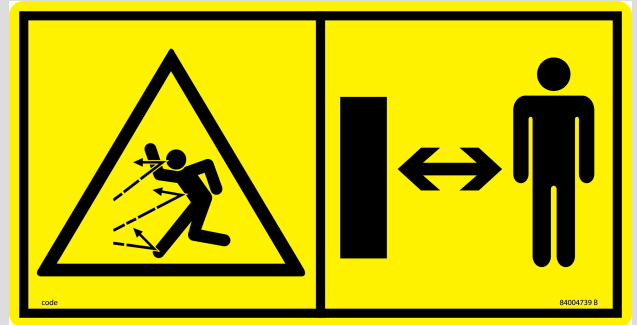
FLYING OBJECT HAZARD!

STAND CLEAR

Set the machine cutting height to clear obstructions and stones.

Machine can throw stones and debris toward operator or bystanders.

Failure to comply could result in death or serious injury.



84004739_B 13

Quantity: 5

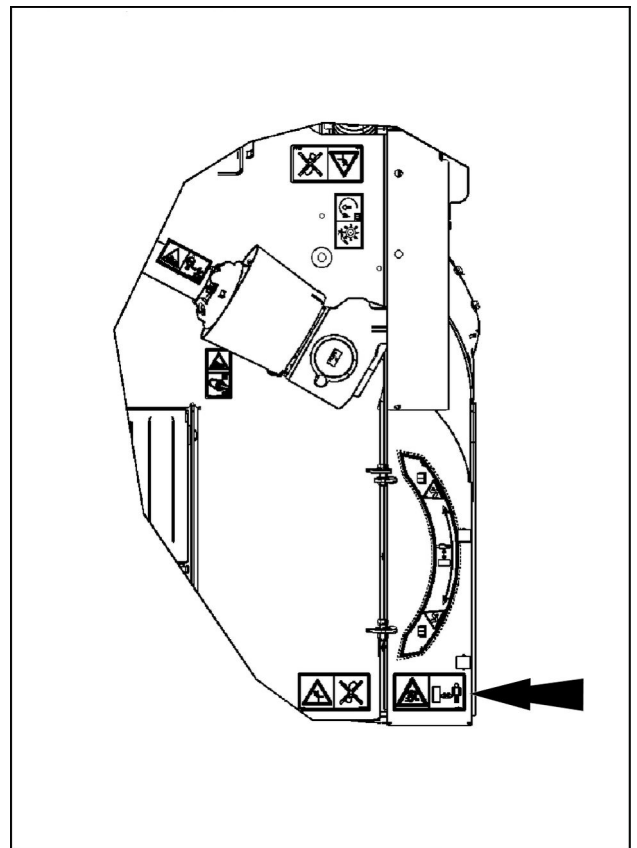
Part number:

84004739

Location 3:

4.0 m (13 ft) units

Located on the left-hand side cutterbar shield.



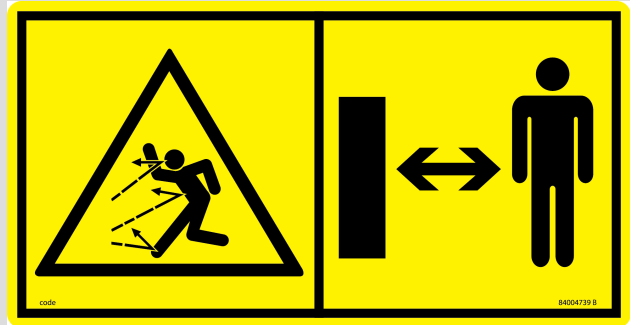
NHIL16HT00031BA 16

Description:**FLYING OBJECT HAZARD!****STAND CLEAR**

Set the machine cutting height to clear obstructions and stones.

Machine can throw stones and debris toward operator or bystanders.

Failure to comply could result in death or serious injury.



84004739_B 13

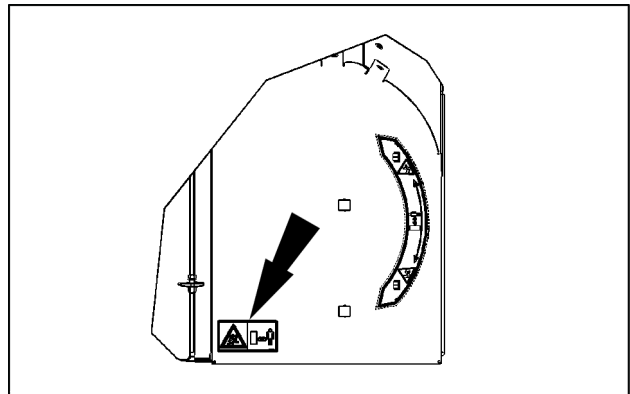
Quantity: 5

Part number:

84004739

Location 3:**4.9 m (16 ft) units**

Located on the left-hand side cutterbar shield.



NHIL16HT00014AA 17

Description:



WARNING

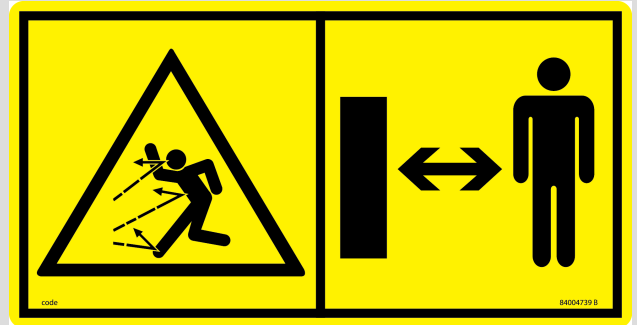
FLYING OBJECT HAZARD!

STAND CLEAR

Set the machine cutting height to clear obstructions and stones.

Machine can throw stones and debris toward operator or bystanders.

Failure to comply could result in death or serious injury.



84004739_B 13

Quantity: 5

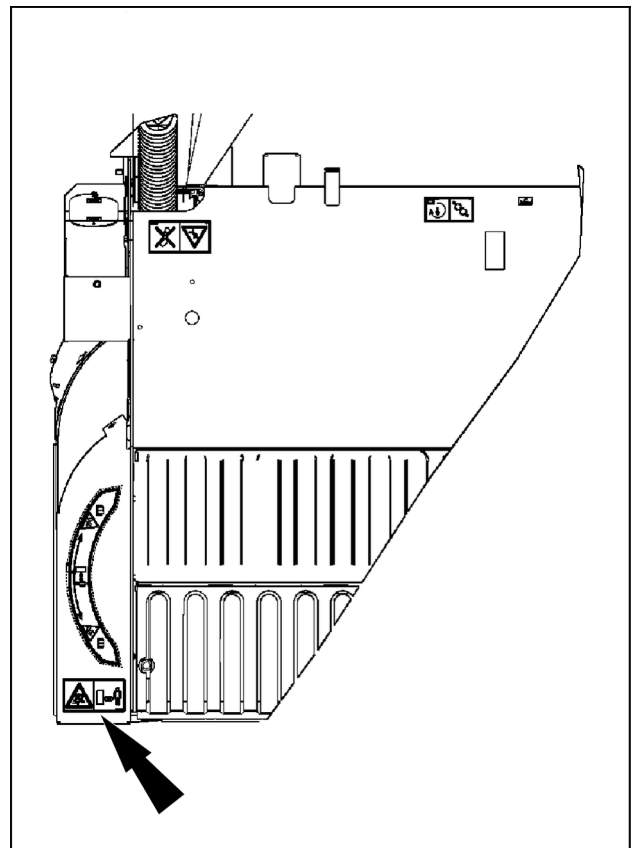
Part number:

84004739

Location 4:

4.0 m (13 ft) units

Located on the right-hand side cutterbar shield.



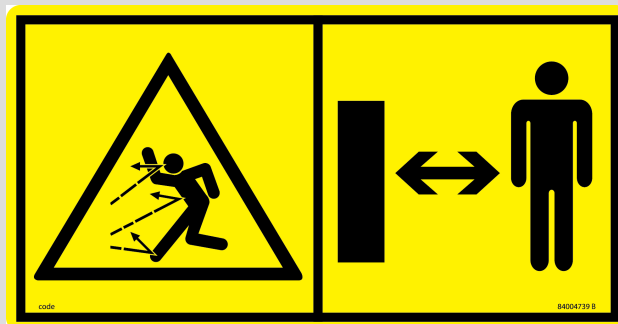
NHIL16HT00032BA 18

Description:**WARNING****FLYING OBJECT HAZARD!****STAND CLEAR**

Set the machine cutting height to clear obstructions and stones.

Machine can throw stones and debris toward operator or bystanders.

Failure to comply could result in death or serious injury.



84004739_B 13

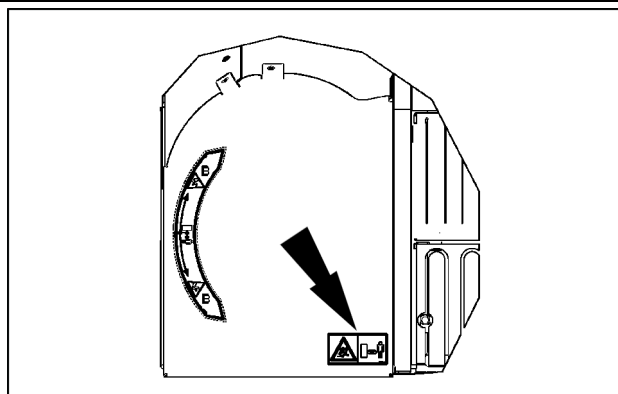
Quantity: 5

Part number:

84004739

Location 4:**4.9 m (16 ft) units**

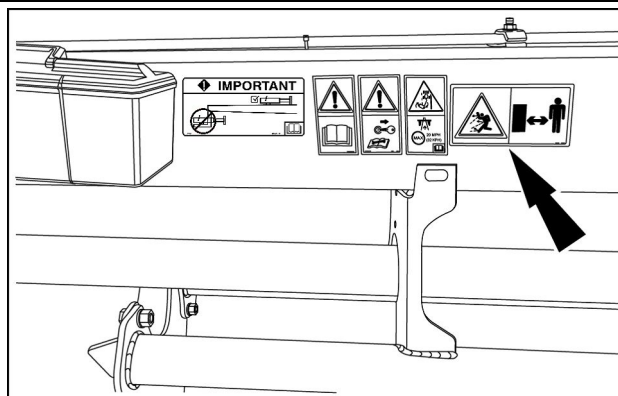
Located on the right-hand side cutterbar shield.



NHIL16HT00013AA 19

Location 5:

Located on the left-hand side of the tongue and to the rearward side of the toolbox.



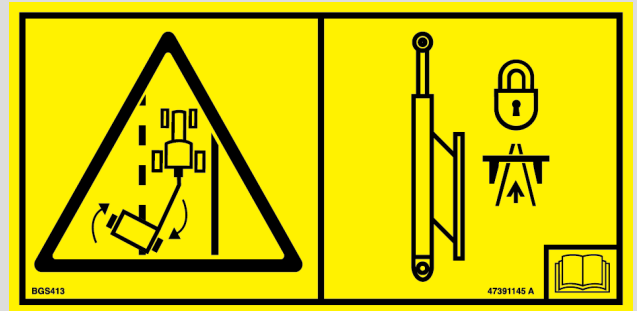
NHIL16HT00002AA 20

(4)

Description:**WARNING****LOSS OF CONTROL HAZARD!****TONGUE SWING CYLINDER LOCK**

Engage the lock when transporting to prevent accidental movement of the header.

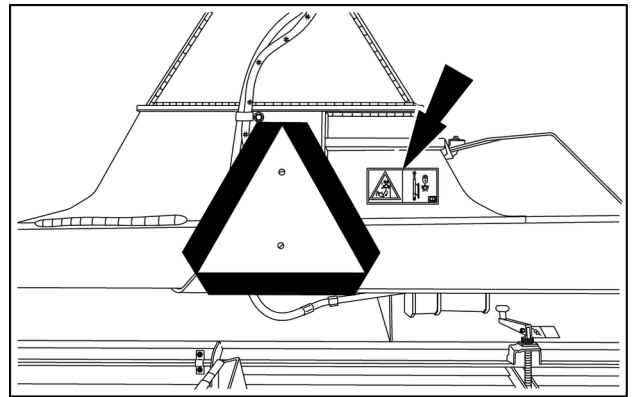
Failure to comply could result in death or serious injury.

Quantity: 1**Part number:****English 47391145**

47391145_A 21

Location:

Located on the rear of the trail frame, adjacent to the Slow Moving Vehicle (SMV) emblem.



NHIL13HT00431AA 22

(5)

Description:



ENTANGLEMENT HAZARD!

SHIELD MISSING
DO NOT OPERATE

The shield has been removed, do not operate this unit.

Failure to comply will result in death or serious injury.



47361278_A 23



849472_H 24

Quantity: 5

Part number – Current pictorial version:
47361278

Part number – Previous text version:

849472 – English

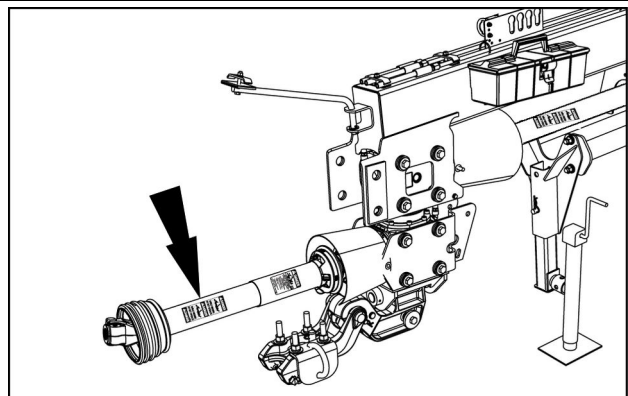
849483 – French

9801256 – Spanish

Location 1:

Located on the primary Power Take-Off (PTO) shaft that is underneath the PTO shaft shield.

NOTE: This safety sign is not visible under normal circumstances because the placement is underneath the shield. The indicated safety sign in the image is for reference only.

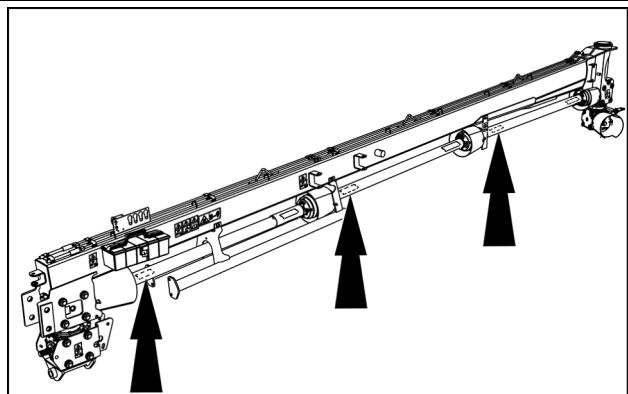


NHIL13HT00494AA 25

Location 2, 3, and 4:

Located on the PTO shaft of the front PTO, middle PTO, and rear PTO, and is underneath the PTO shaft shield.

NOTE: This safety sign is not visible under normal circumstances because the placement is underneath the shield.



NHIL16HT00054AA 26

Description:**ENTANGLEMENT HAZARD!****SHIELD MISSING****DO NOT OPERATE**

The shield has been removed, do not operate this unit.

Failure to comply will result in death or serious injury.

Quantity: 5

Part number – Current pictorial version:
47361278

Part number – Previous text version:
849472 – English
849483 – French
9801256 – Spanish



47361278_A 23

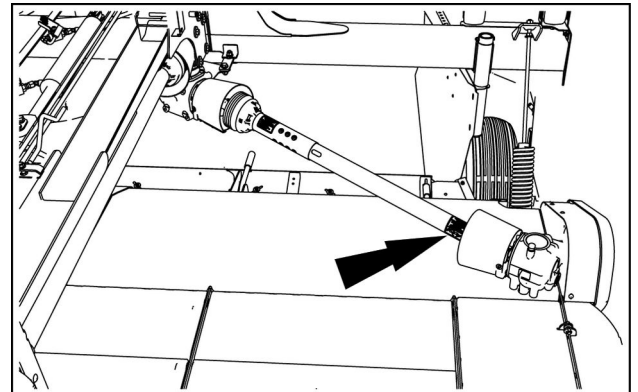


849472_H 24

Location 5:

Located on the cross-header drive shaft underneath the PTO shaft shield.

NOTE: This safety sign is not visible under normal circumstances because the placement is underneath the shield. The indicated safety sign in the image is for reference only.



NHIL13HT00500AA 27

(6)

Description:**(ENTANGLEMENT HAZARD!)****ROTATING DRIVELINE**

Failure to comply will result in death or serious injury.

KEEP AWAY!**DO NOT OPERATE WITHOUT –**

- All driveline, tractor, and equipment shields in place.
- Drivelines securely attached at both ends.
- Drivelines shields that turn freely on driveline.

DO NOT USE PTO ADAPTORS

Quantity: 5

Part number – Current pictorial version:

47361278

Part number – Previous text version:

849471 – English

849482 – French

9801260 – Spanish



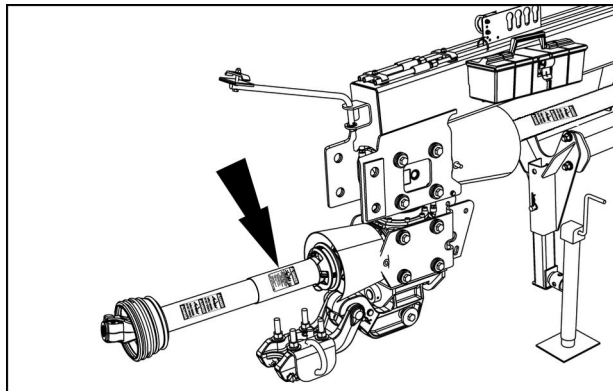
47361278_A 28



849471_H 29

Location 1:

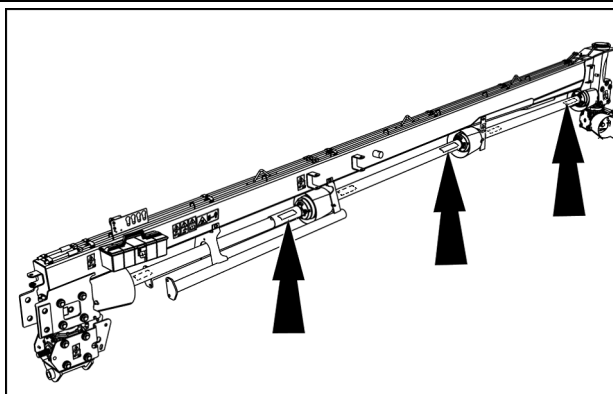
Located on the primary Power Take-Off (PTO) cover.



NHIL13HT00494AA 30

Location 2, 3, and 4:

Located on the secondary Power Take-Off (PTO) cover; front PTO, middle PTO, and rear PTO.



NHIL16HT00054AA 31

Description:



**(ENTANGLEMENT HAZARD!)
ROTATING DRIVELINE**

Failure to comply will result in death or serious injury.

KEEP AWAY!

DO NOT OPERATE WITHOUT –

- All driveline, tractor, and equipment shields in place.
- Drivelines securely attached at both ends.
- Drivelines shields that turn freely on driveline.

DO NOT USE PTO ADAPTORS

Quantity: 5

Part number – Current pictorial version:
47361278

Part number – Previous text version:

849471 – English
849482 – French
9801260 – Spanish



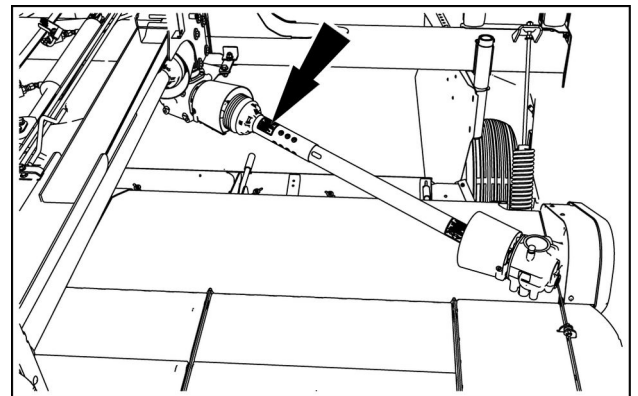
47361278_A 28



849471_H 29

Location 5:

Located on the Power Take-Off (PTO) cover, header drive PTO.



NHIL13HT00500AA 32

(7)

Description:**WARNING**

RISK OF HARM POSSIBLE WHILE MACHINE IS OPERATING OR WHEN PERFORMING ROUTINE MAINTENANCE OPERATIONS ON MACHINE!

- Before operating machine, read operator's manual and ALL SAFETY instructions.
- If the operator's manual is missing, contact your dealer or service department.
- Before starting or operation, clear area of bystanders.
- Disengage drives including PTO. Stop engine, wait for all movement to stop before leaving operator's position.
- Keep all shields in place, keep hands, feet, clothing and hair from moving parts.
- Keep riders off machines.
- Use Slow-Moving Vehicle (SMV) identification emblem and flashing warning lights when operating on highways, except when prohibited by law.
- Never adjust, lubricate, clean or remove a crop blockage with tractor engine running.

Failure to comply could result in death or serious injury.

Quantity: 1

Part number:

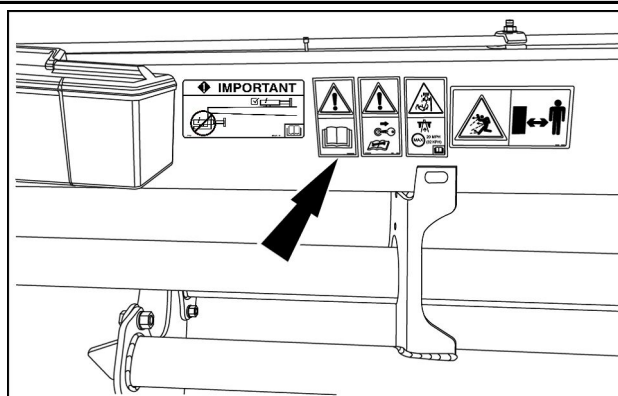
84004731



84004731_B 33

Location:

Located on the left-hand side of the tongue and to the rearward side of the toolbox.



NHIL16HT00002AA 34

(8)

Description:**WARNING****RISK OF HARM DURING MAINTENANCE OF THE MACHINE!**

Never adjust, lubricate, clean, or clear crop blockages with the machine running.

Before all adjustment, lubrication, and maintenance **ALWAYS:**

1. Raise the machine. Engage the header lift lock channels.
2. Disengage the Power Take-Off (PTO) drive.
3. Shut off the tractor engine. Remove the key.
4. Engage the tractor parking brake.
5. Make sure that all moving parts have stopped. Failure to comply could result in death or serious injury.



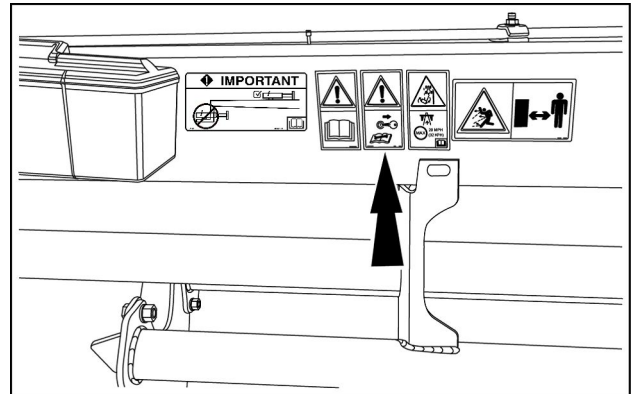
84004744_B 35

Quantity: 1

Part number:
84004744

Location:

Located on the left-hand side of the tongue and to the rearward side of the toolbox.



NHIL16HT00002AA 36

(9)

Description:**WARNING****LOSS OF CONTROL HAZARD!**

- Properly prepare the machine for transport / roading
- Be cautious of possible width and height restrictions when passing through overpass roadways.
- 32 km/h (20 mph) – MAXIMUM (MAX) road speed.
- Towing unit must be equipped with compatible electrical connections to operate lights.
- Use caution when making turns to avoid loss of control.

Failure to comply could result in death or serious injury.



47392435_A 37

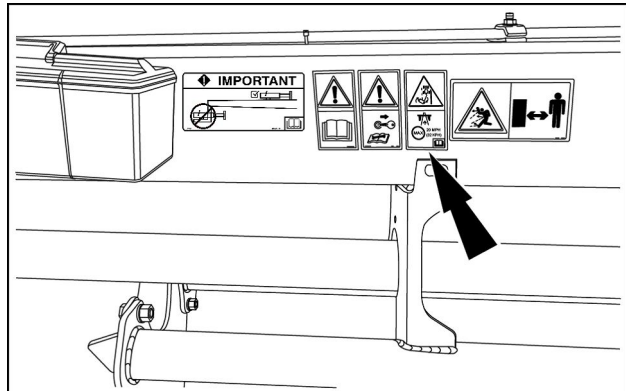
Quantity: 1

Part number:

English 47392435

Location:

Located on the left-hand side of the tongue and to the rearward side of the toolbox.



NH16HT00002AA 38

(10)

Description:



DANGER



ENTANGLEMENT HAZARD!

Do not operate without shield in place.

Failure to comply will result in death or serious injury.

Quantity: 6

Part number:

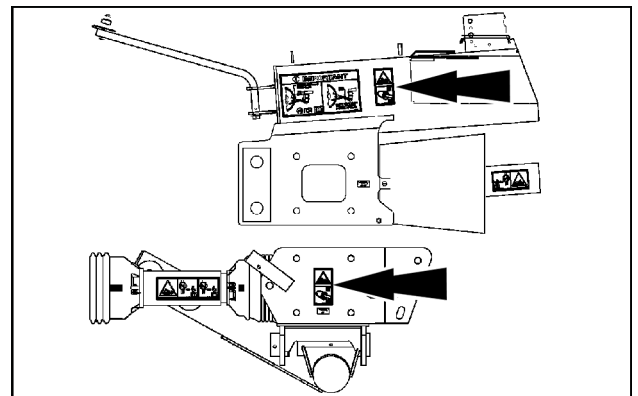
47826865



47826865 39

Location 1 and 2:

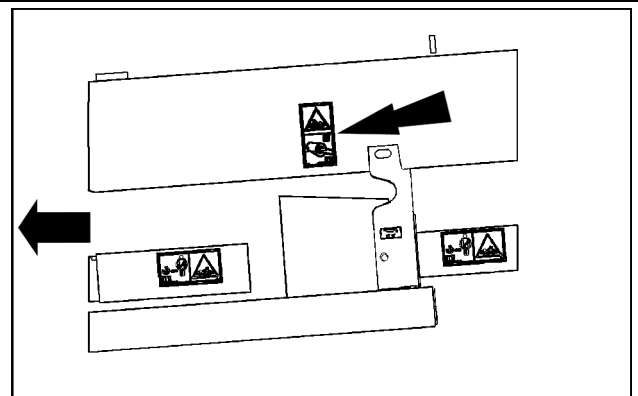
Located on the foremost hitch section of the tongue frame and lower swivel hitch gearbox on the left-hand side.



NHIL16HT00049AA 40

Location 3:

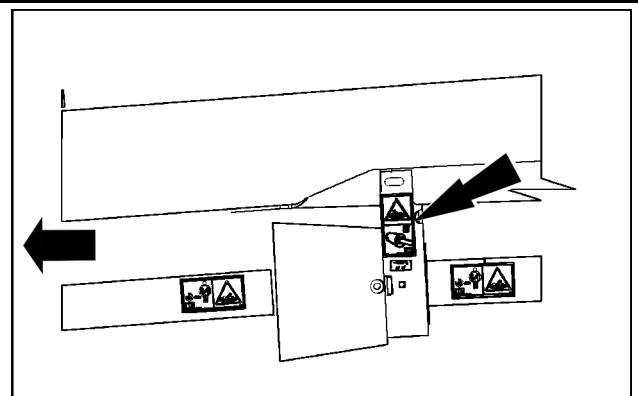
Located on the left-hand side of the tongue frame on the first Power Take-Off (PTO) section behind the hitch.



NHIL16HT00051AA 41

Location 4:

Located on the left-hand side of the tongue frame on the second PTO section behind the hitch.



NHIL16HT00052AA 42

Description:**DANGER**
ENTANGLEMENT HAZARD!

Do not operate without shield in place.
Failure to comply will result in death or serious injury.

Quantity: 6

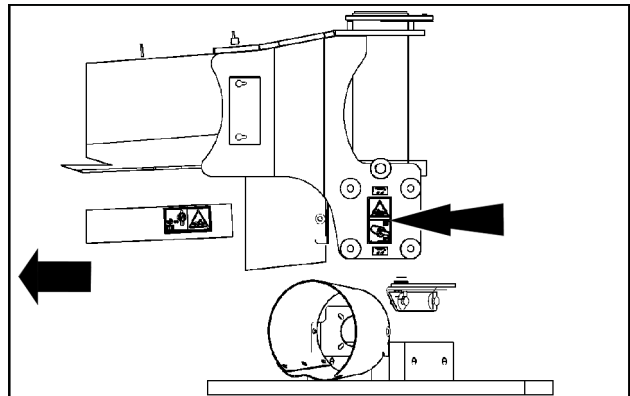
Part number:
47826865



47826865 39

Location 5:

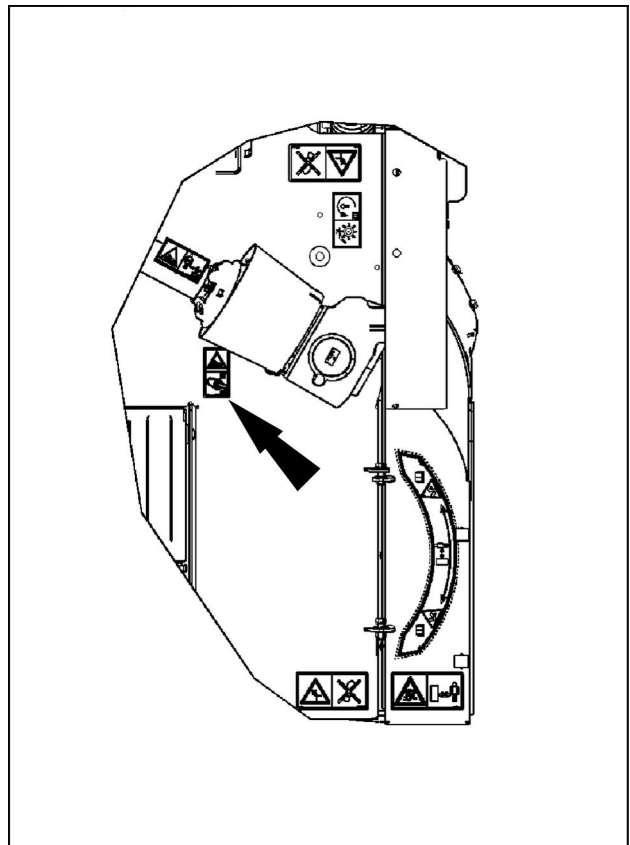
Located on the left-hand side of the lower reversing swivel gearbox.



NHIL16HT00053AA 43

Location 6:

Located on the top shield of the header forward of the PTO connection to the bevel gearbox.



NHIL16HT00031BA 44

(11)

Description:



CRUSHING HAZARD!

Make sure that you engage the header lift lock channels whenever the header is raised for maintenance or road transport.
Failure to comply will result in death or serious injury.

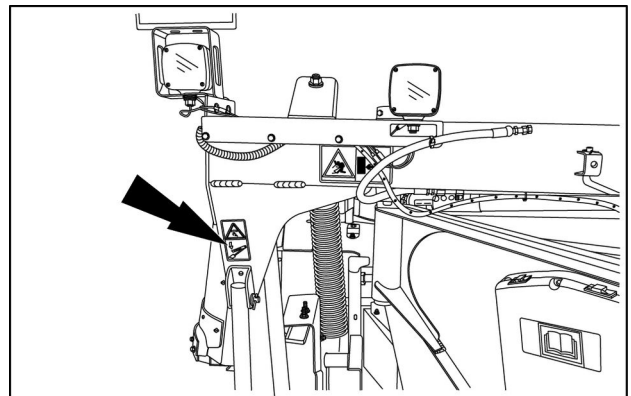
Quantity: 2

Part number:
84004735



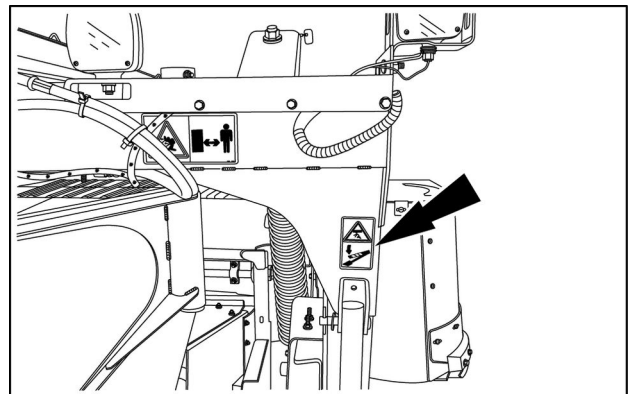
Location 1:

Located on left-hand side downward leg of the trail frame.



Location 2:

Located on right-hand side downward leg of the trail frame.



(12)

Description:**WARNING****ENTANGLEMENT HAZARD!**

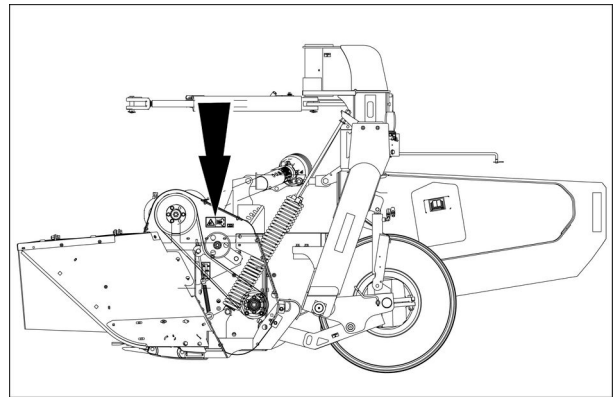
Rotating drive belt, sheaves, and idler assembly, are within the area of the surrounding shielding. Do not reach into the shielded area while the machine is operating. Failure to comply will result in death or serious injury.

Quantity: 1**Part number:**
84011345

84011345_F 48

Location:

Located on the left-hand side of the machine behind the mower-conditioner drive belt door shield, on the back plate of the surrounding mower-conditioner drive belt shielding.



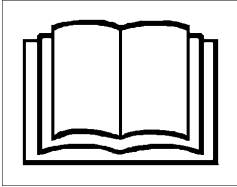
NHIL13HT00486AA 49

Road travel signs and decals

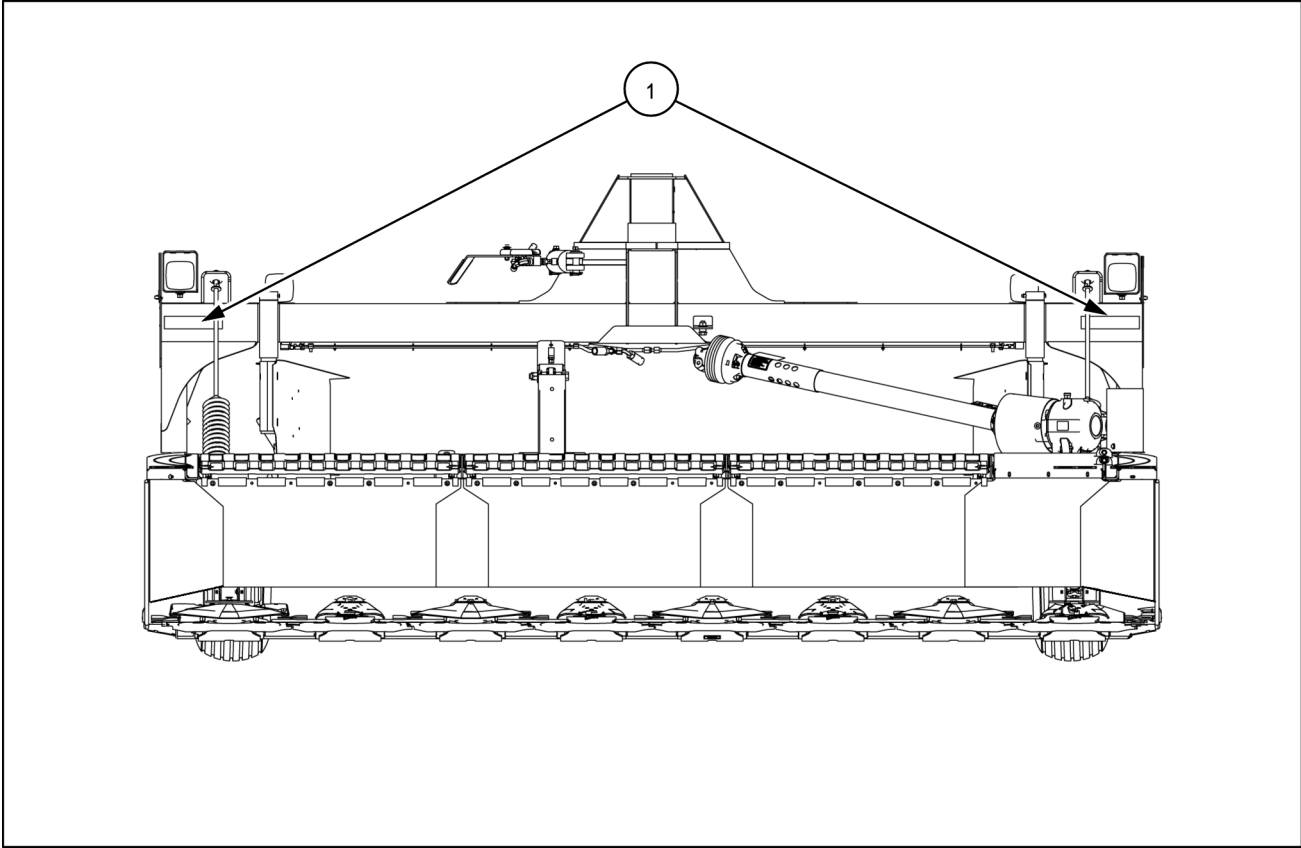
The following road travel signs and decals are placed on your machine as a guide for your safety and for those working with you. Walk around the machine and note the content and location of these road travel signs and decals before operating your machine.

Keep road travel signs and decals clean and legible. Clean road travel signs and decals with a soft cloth, water, and a gentle detergent. Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove road travel signs and decals.

Replace all road travel signs and decals that are damaged, missing, painted over, or illegible. If a road travel sign or decal is on a part that is replaced, make sure the road travel sign or decal is installed on the new part. See your NEW HOLLAND dealer for replacement road travel signs and decals.

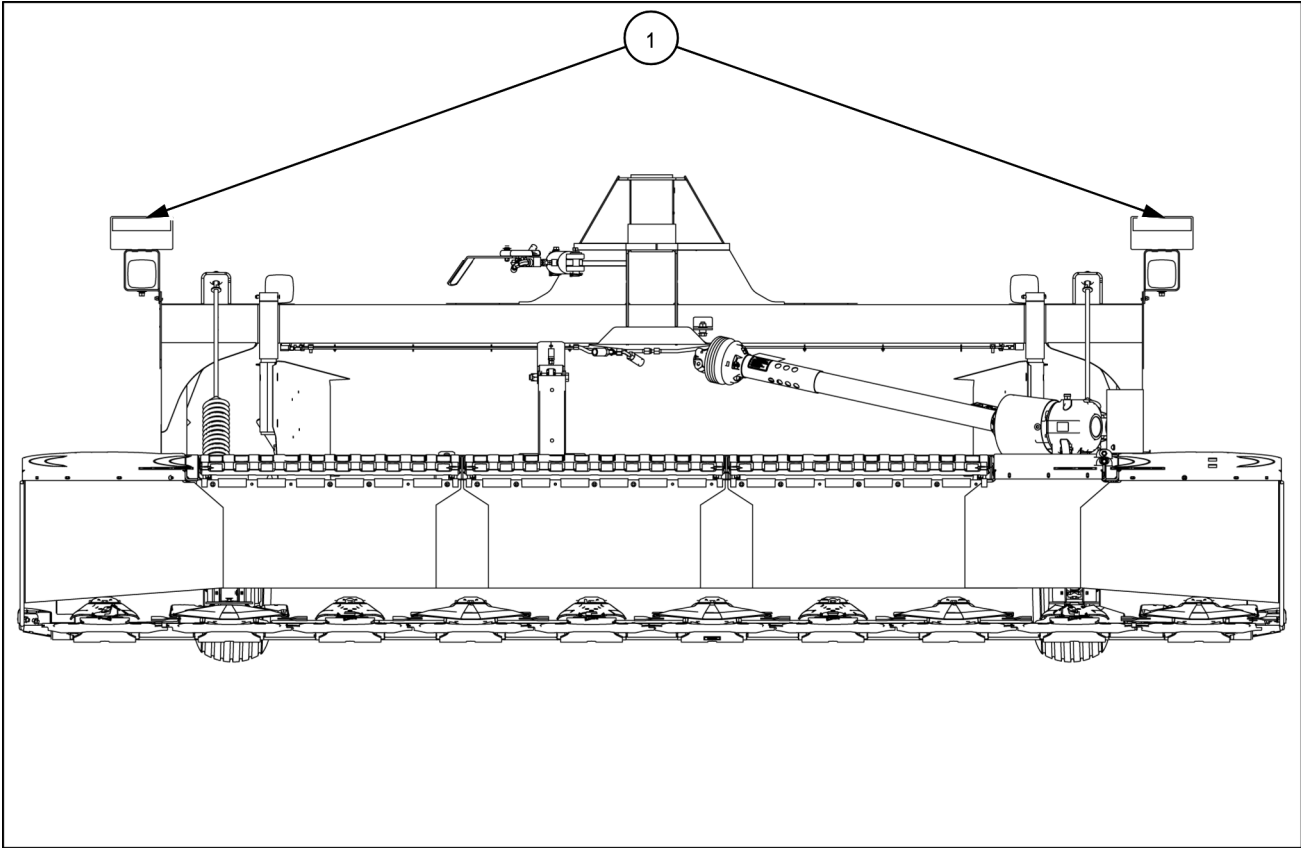


Road travel signs or decals that display the “Read Operator’s Manual” symbol are intended to direct the operator to the operator’s manual for further information regarding maintenance, adjustments, or procedures for particular areas of the machine. When a road travel sign or decal displays this symbol, refer to the appropriate page of the operator’s manual.



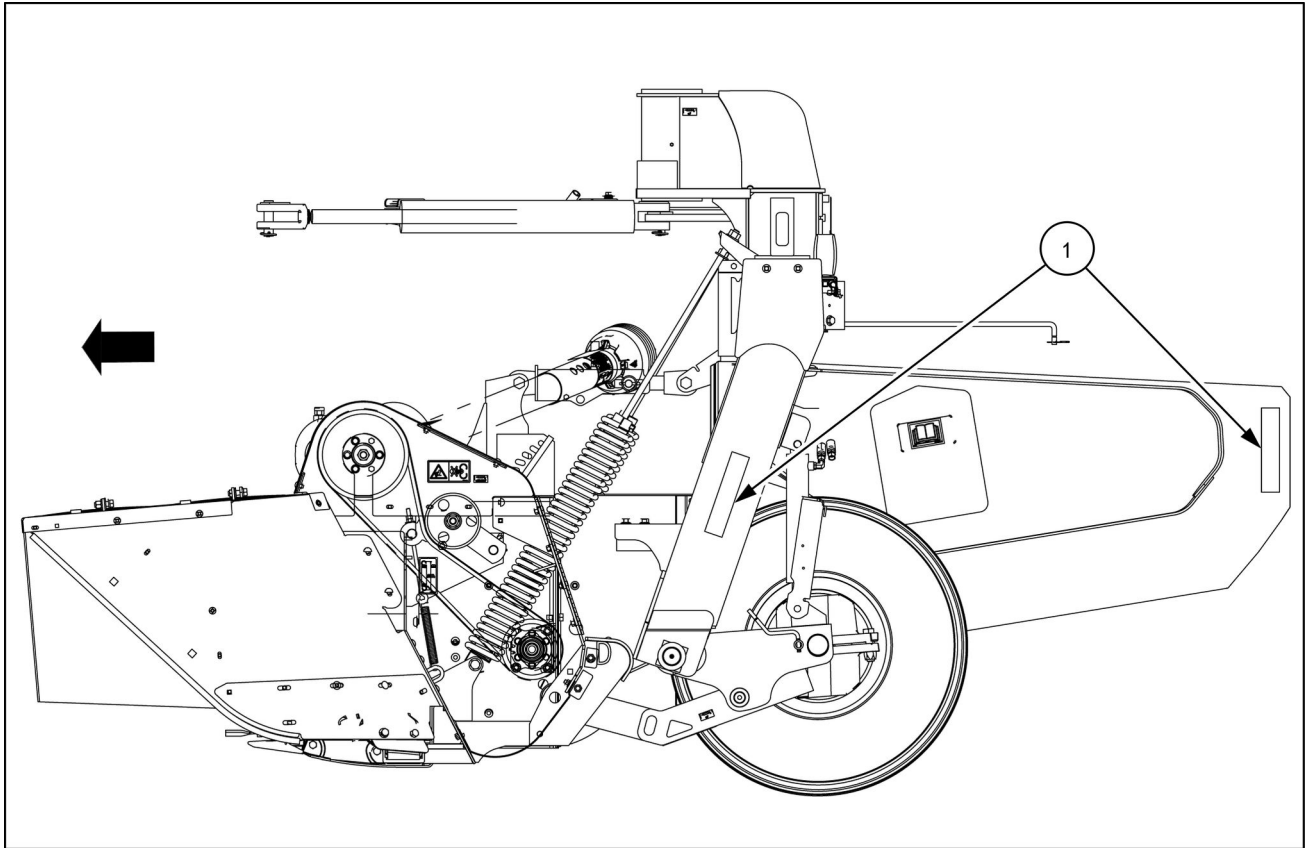
NHIL16HT00025FB 1

4.0 m (13 ft) Base unit model – Front view



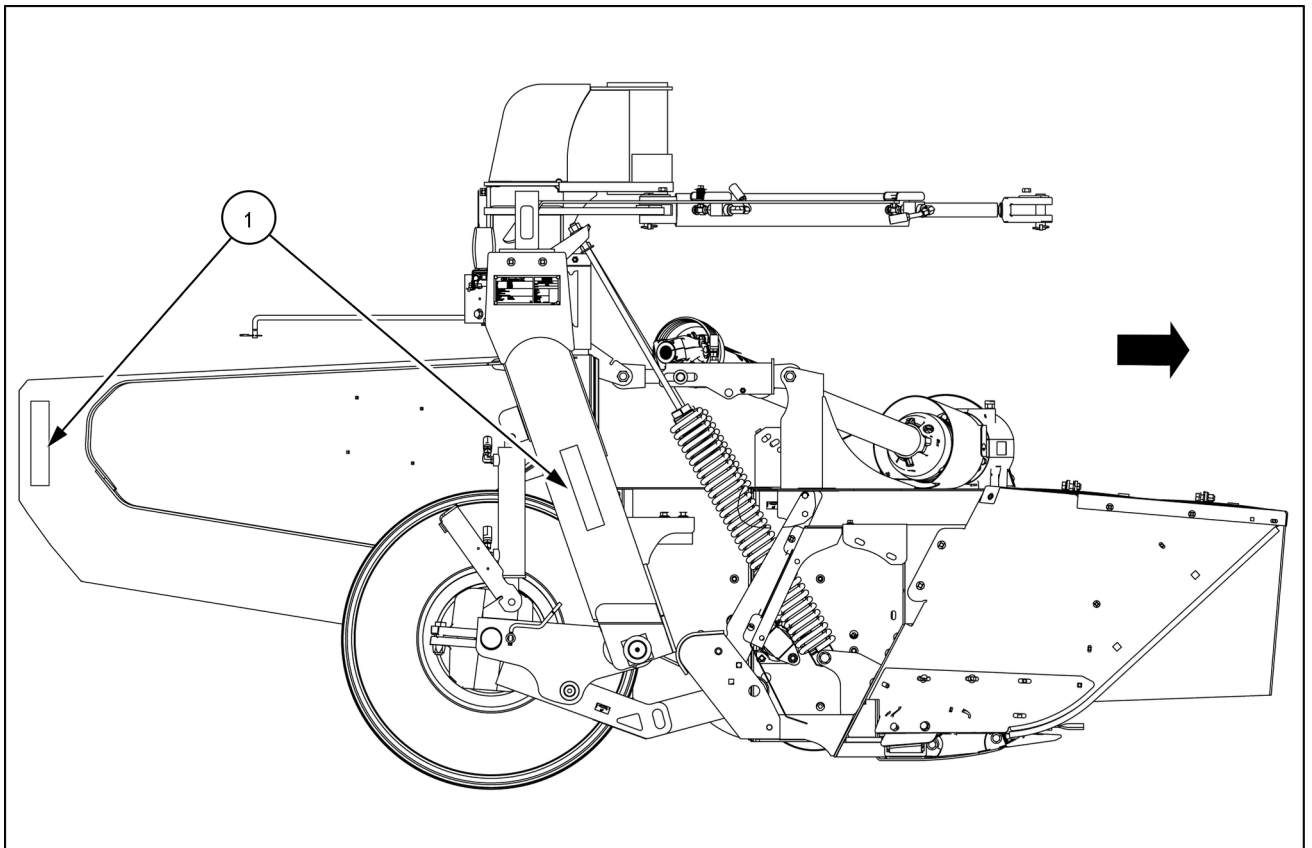
NHIL16HT00023FA 2

4.9 m (16 ft) Base unit model – Front view



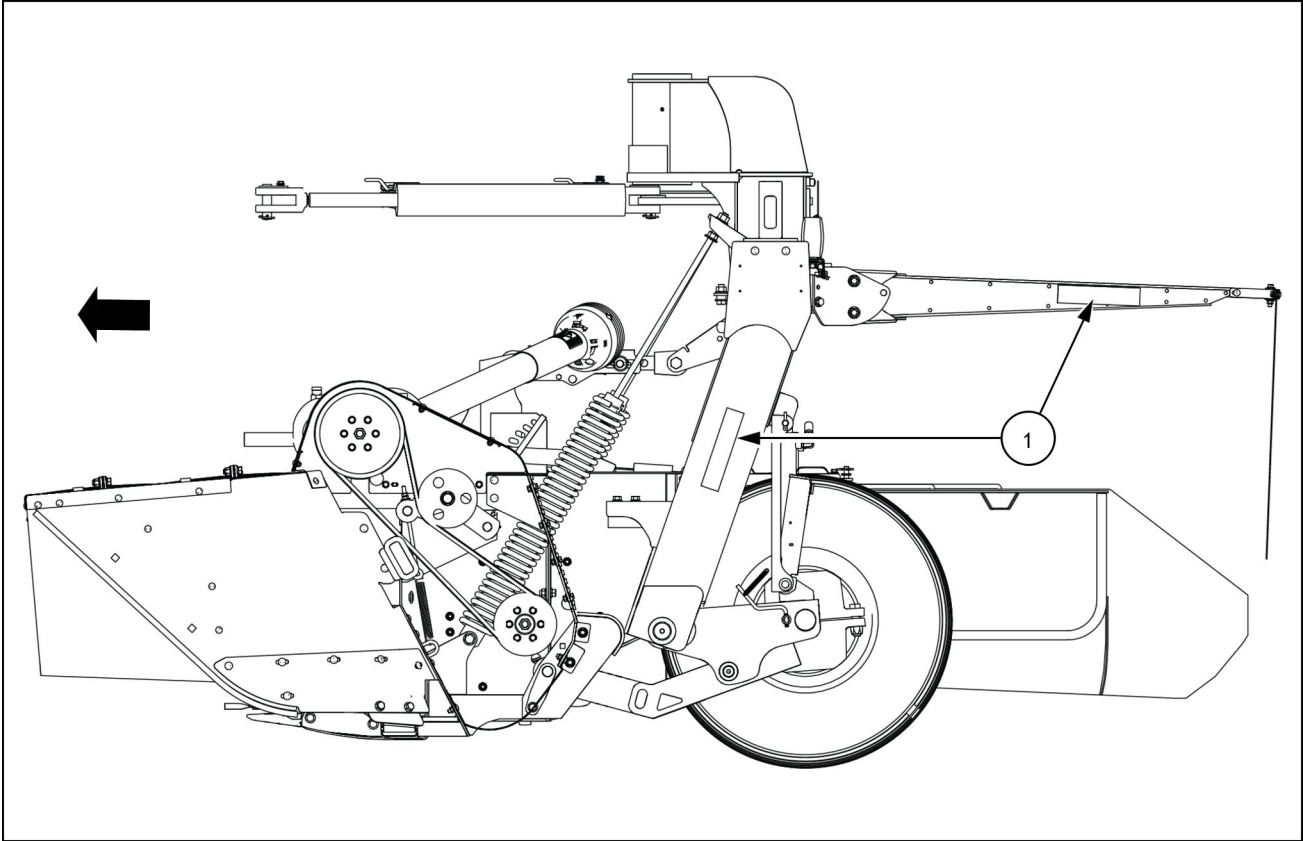
NHIL13HT00486AA 3

Base roll conditioner unit – Left-hand side view



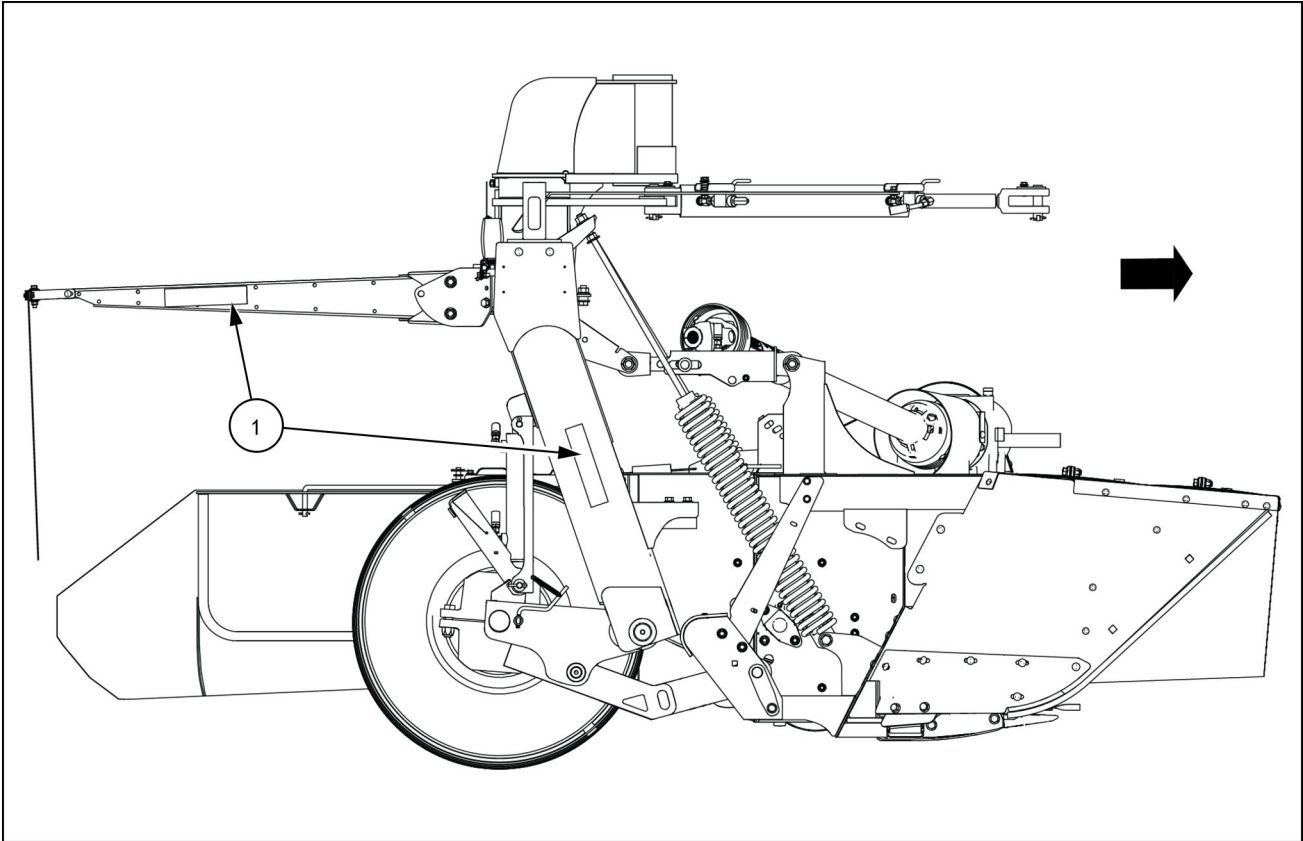
NHIL13HT00487AA 4

Base roll conditioner unit – Right-hand side view



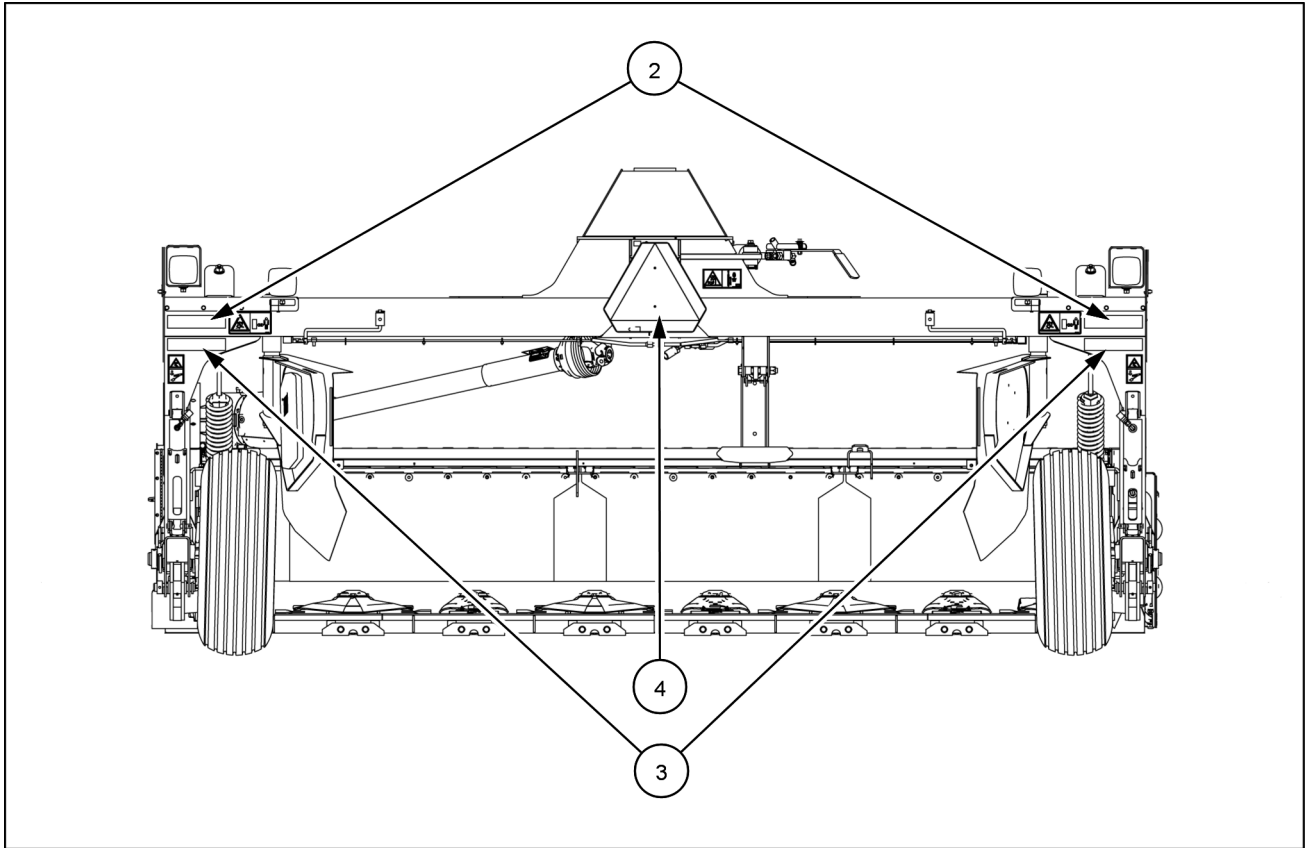
NHIL16HT00287FA 5

Base flail conditioner unit – Left-hand side view



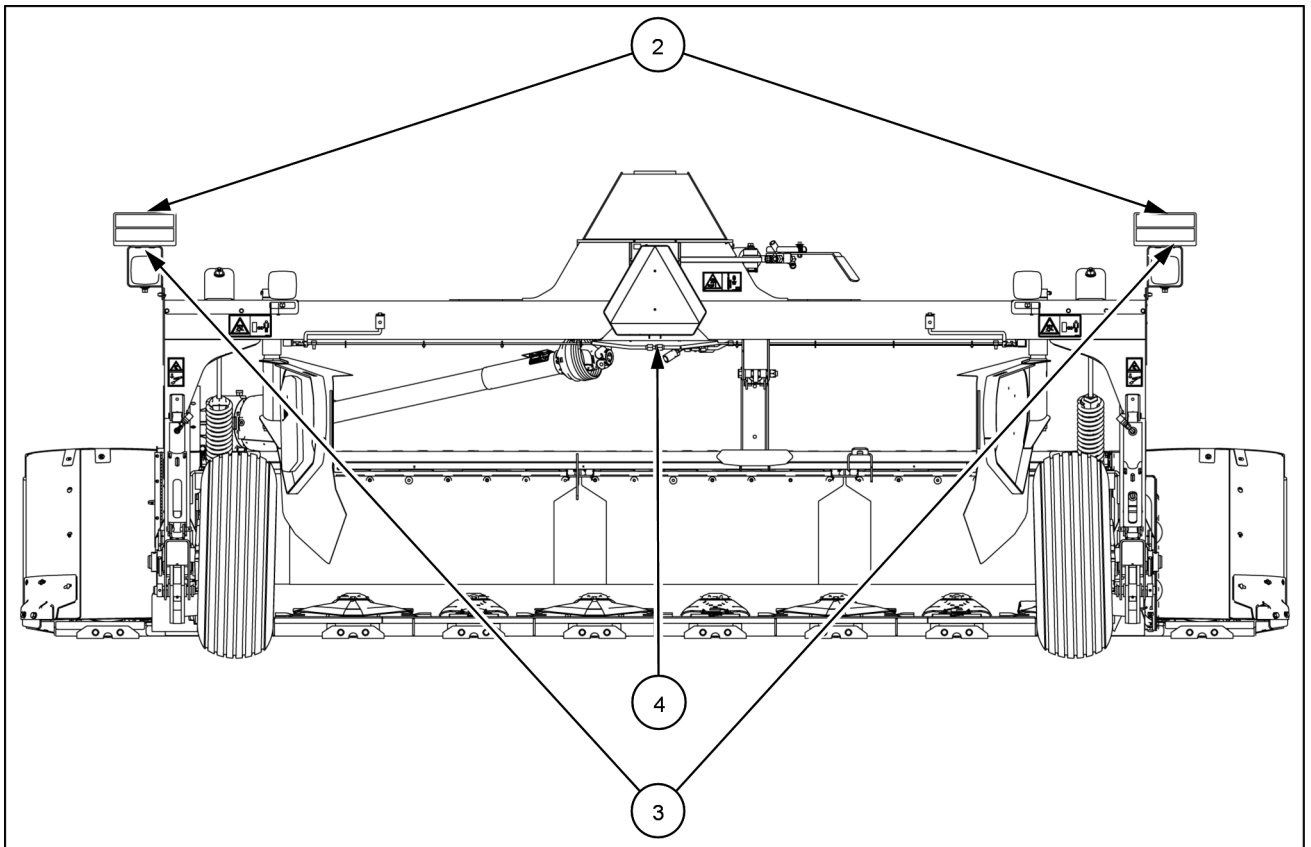
NHIL16HT00288FA 6

Base flail conditioner unit – Right-hand side view



NHIL16HT00021FB 7

4.0 m (13 ft) Base unit model – Rear view



NHIL16HT00022FA 8

4.9 m (16 ft) Base unit model – Rear view

(1)

Description:**Tape, Yellow retroreflective**

Used for extra visibility and/or width definition to vehicles approaching from the side or front.

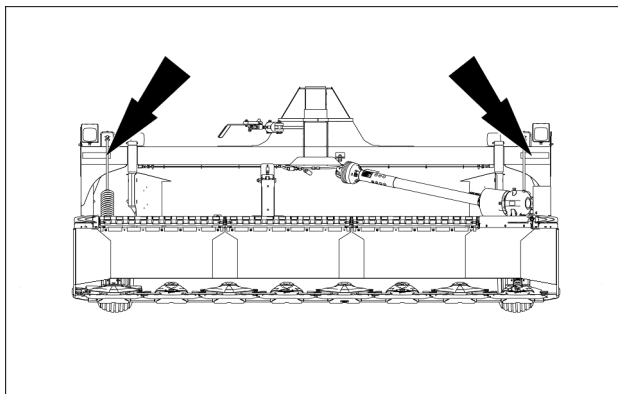
Quantity: 8



86547782_YEL 9

Part number:**86547782****Location 1 and 2:****4.0 m (13 ft) models only**

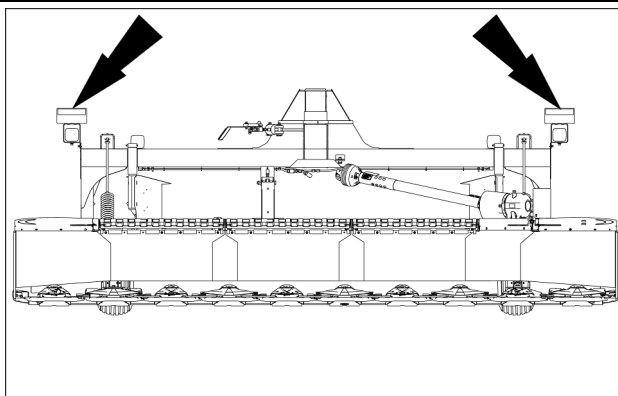
Located on the front right-hand side of the trail frame.



NHIL16HT00009AB 10

Location 1 and 2:**4.9 m (16 ft) models only**

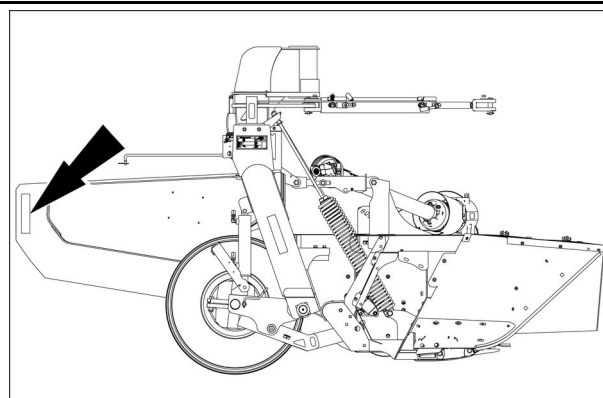
Located on the front of the right-hand and left-hand sides light bracket.



NHIL16HT00011AA 11

Location 3 – Roll conditioner unit only:

Located on the outer right-hand side of the windrow shield.



NHIL13HT00487AA 12

Description:

Tape, Yellow retroreflective

Used for extra visibility and/or width definition to vehicles approaching from the side or front.

Quantity: 8

Part number:

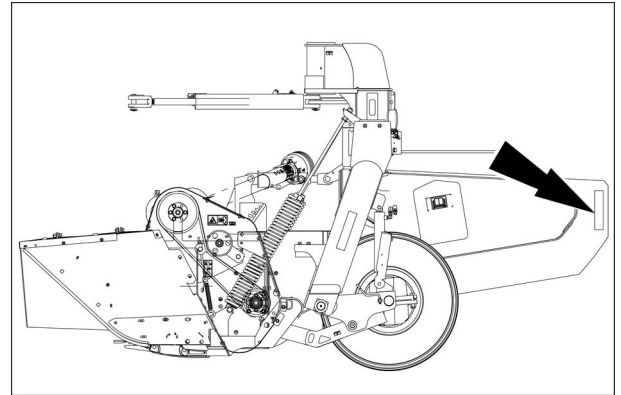
86547782



86547782_YEL 9

Location 4 – Roll conditioner unit only:

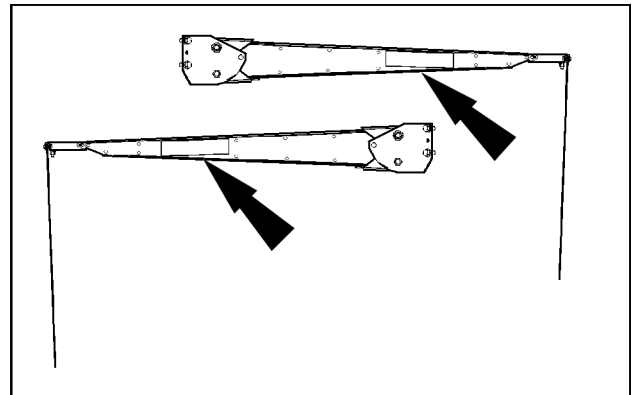
Located on the outer left-hand side of the windrow shield.



NHIL13HT00486AA 13

Location 3 and 4 – Flail conditioner unit only:

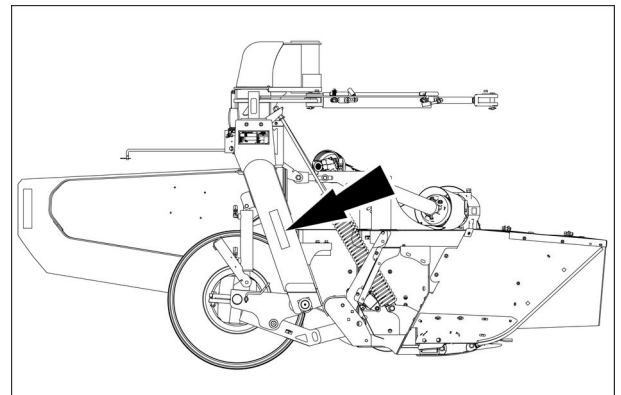
Located on the outer right-hand side and left-hand side of the support arms for the flail curtain.



NHIL16HT00015AA 14

Location 5:

Located on the right-hand side of the trail frame.



NHIL13HT00487AA 15

Description:**Tape, Yellow retroreflective**

Used for extra visibility and/or width definition to vehicles approaching from the side or front.

Quantity: 8



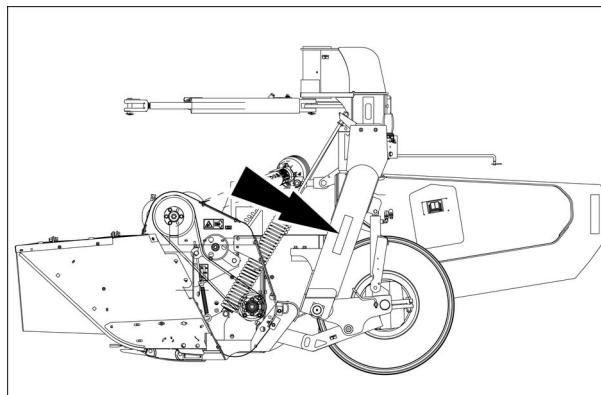
86547782_YEL 9

Part number:

86547782

Location 6:

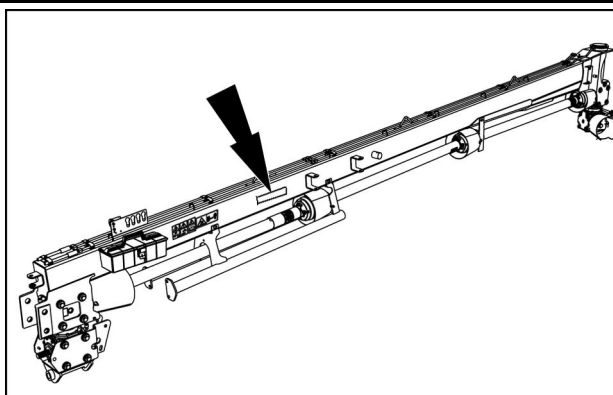
Located on the left-hand side of the trail frame.



NHIL13HT00486AA 16

Location 7:

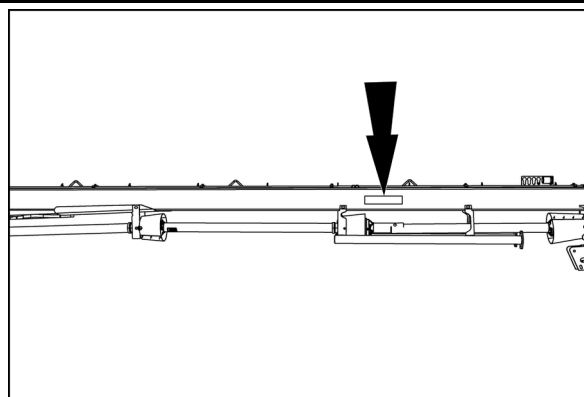
Located on the left-hand side of the tongue.



NHIL13HT00489AB 17

Location 8:

Located on the right-hand side of the tongue.



NHIL13HT00493AA 18

(2)

Description:

Tape, Red retroreflective

Used for extra visibility and width definition to vehicles approaching and/or passing from the rear.

Quantity: 2

Part number:

86547781

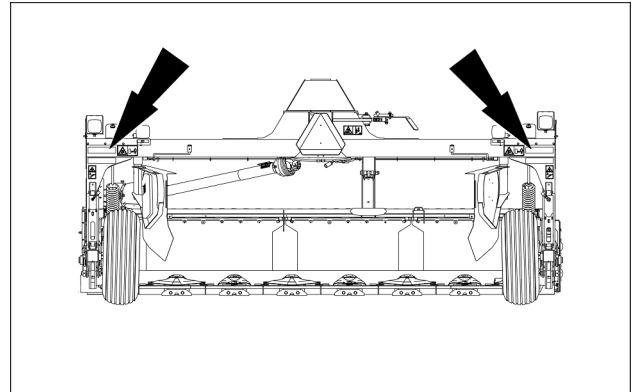


86547781_RED 19

Location 1 and 2:

4.0 m (13 ft) models only

Located on the rear right-hand and left-hand sides of the trail frame.

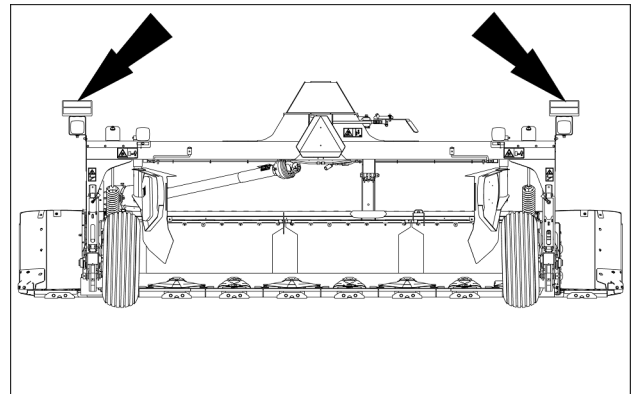


NHIL16HT00008AB 20

Location 1 and 2:

4.9 m (16 ft) models only

Located on the rear of the right-hand and left-hand sides light bracket.



NHIL16HT00010AA 21

(3)

Description:**Tape, Red-orange retroreflective**

Used for extra visibility and width definition to vehicles approaching and/or passing from the rear.

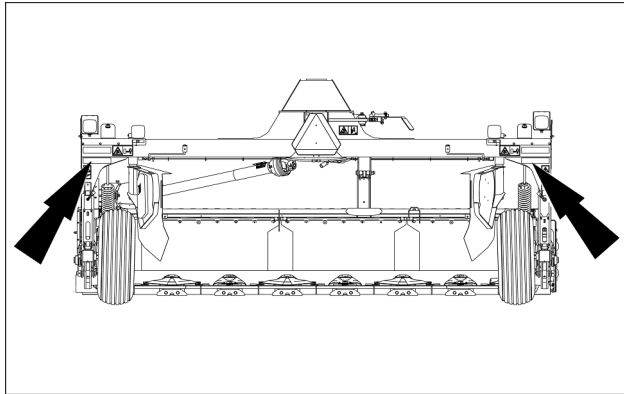
Quantity: 2



86547783_RD-OR 22

Part number:**86547783****Location 1 and 2:****4.0 m (13 ft) models only**

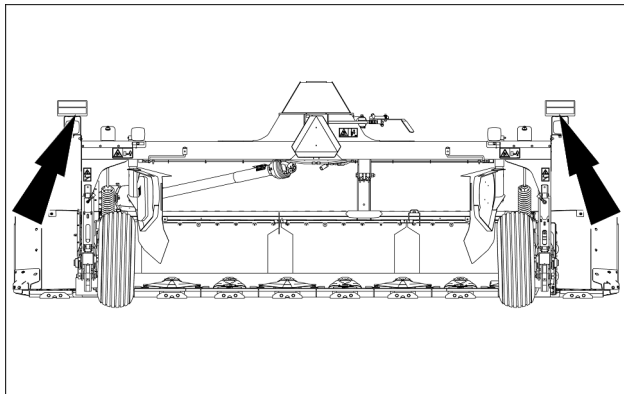
Located on the rear right-hand and left-hand sides of the trail frame.



NHIL16HT00008AB 23

Location 1 and 2:**4.9 m (16 ft) models only**

Located on the rear of the right-hand and left-hand light bracket.



NHIL16HT00010AA 24

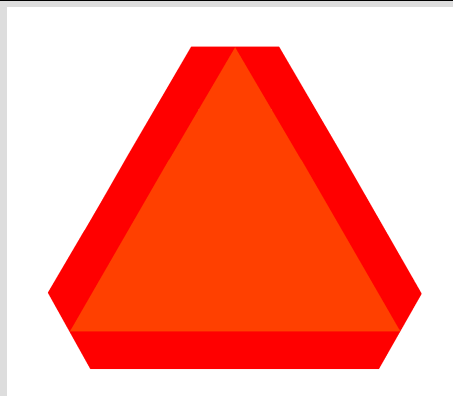
(4)

Description:**Slow-Moving Vehicle (SMV) sign**

Used to indicate low vehicle speeds to oncoming traffic.

Quantity: 1

Part number:
86547710

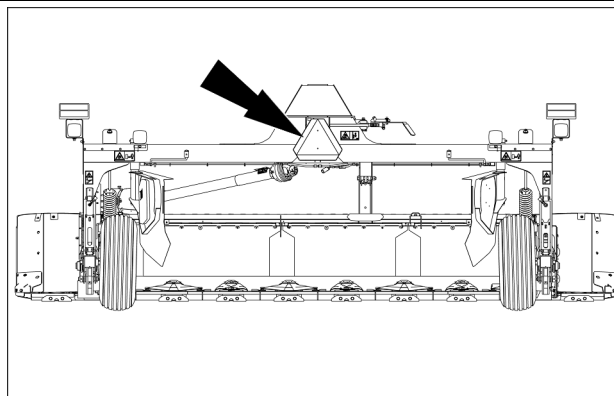


86547710 PLATE 25

Location:

Located at the middle rear of the trail frame.

NOTE: Location is the same position for both the **4.0 m (13 ft)** model and **4.9 m (16 ft)** model.



NHIL16HT00010AA 26

Informational decals

Informational decals on your machine serve as a guide to service location points, service information, operational indicators, adjustments, and settings. The placements of the informational decals to the machine may have application to one or more locations. Each informational decal description includes the decal locations on the machine. Walk around the machine and note the intent and/or content and location of these informational decals before operating your machine.

Keep the informational decals clean and legible. Clean the informational decals with a soft cloth, water, and gentle detergent.

NOTICE: Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove safety signs.

Replace all informational decals that are damaged, missing, painted over, or illegible. If an informational decal is on a part that you or your dealer replace, make sure that you or your dealer install the informational decal on the new part. See your dealer for replacement informational decals.

Informational decals that display the “Read operator’s manual” symbol direct you to the operator’s manual for further information with regard to maintenance, adjustments, or procedures for particular areas of the machine. When a safety sign displays this symbol, consult the appropriate page of the operator’s manual.



Informational decals that display the “Read service manual” symbol direct you to the service manual. If you doubt your ability to perform service operations, contact your dealer.



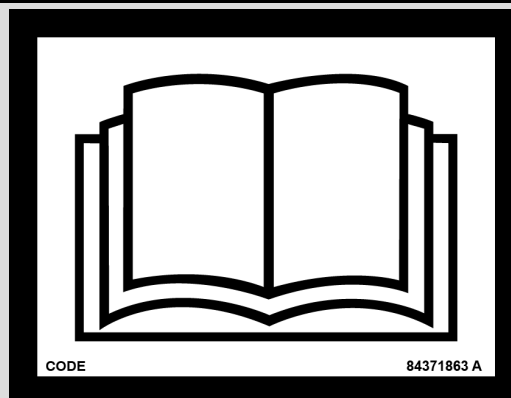
Description:

Operator’s manual storage case

Store the operator’s manual in the storage case for quick and easy accessibility when needed.

Quantity: 1

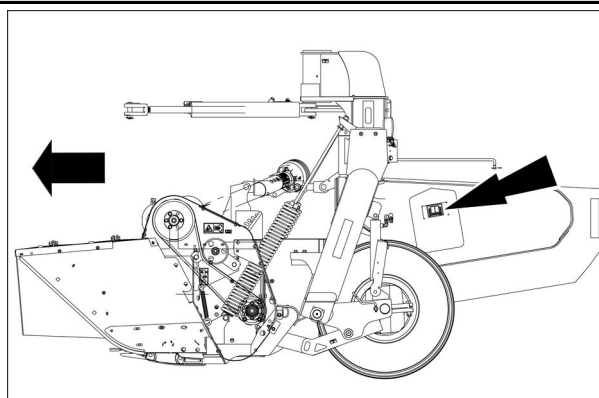
Part number:
84371863



84371863_A 1

Location:

Located on the operator’s manual storage case that is attached to the left-hand windrow shield.



NHIL13HT00486AA 2

Description:**! IMPORTANT**

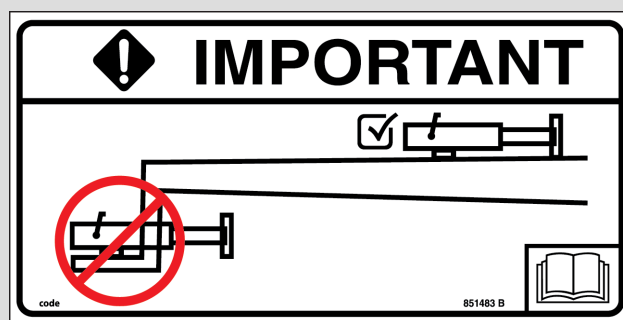
Move and store the jack before operation

- See “Jack – Two-point swivel hitch” (3-11).
- See “Jack – Drawbar swivel hitch” (3-11)

Quantity: 1

Part number:

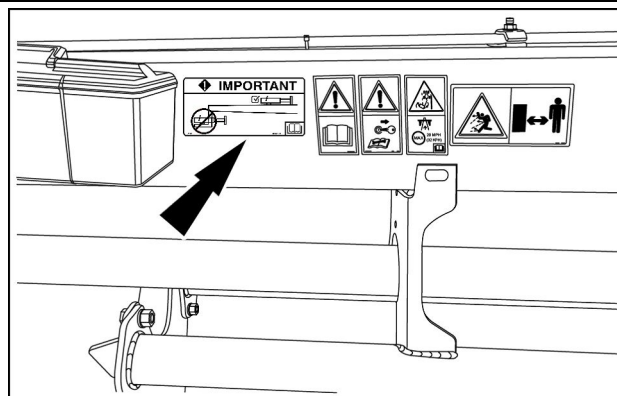
851483 – English and French Canadian
47392435 – Spanish



851483_B_ 3

Location:

Located on the left-hand side of the tongue and to the rearward side of the toolbox.



NHIL16HT00002AA 4

(Two-point swivel hitch only)

Description:

! IMPORTANT

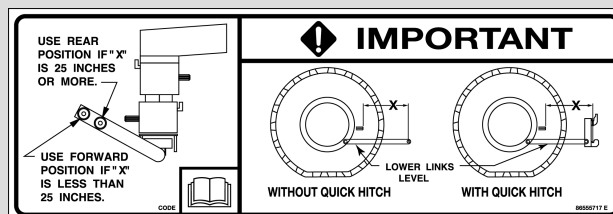
Two-point swivel hitch to tractor setup

Use rear position (indicated) if "X" is 635 mm (25 in) or more.

Use forward position if "X" is less than 635 mm (25 in).

(Measure "X" with the –) Lower links level
(Hitch type example:) Without quick hitch — With quick hitch

- See "Machine preparation – Two-point swivel hitch" (3-2).
- See "Machine preparation – Two-point swivel hitch with tractor quick-hitch" (3-5).



86555717_E 5

Quantity: 1

Part number:

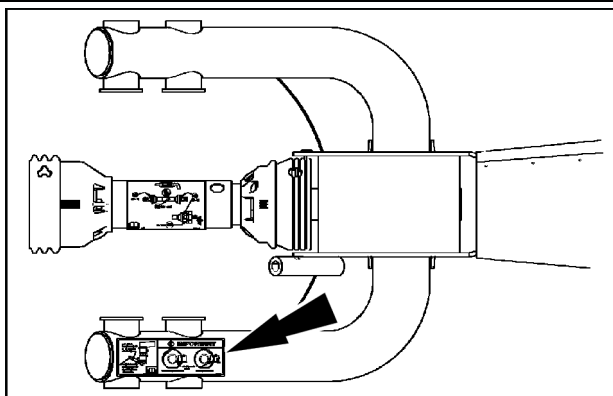
86555717 – English

86559763 – French Canadian

86559764 – Spanish

Location:

Located on the top surface of the left-hand arm tube of the two-point hitch.



NHIL16HT00016AA 6

(Two-point hitch only)

Description:

! IMPORTANT

Tongue position limiting (check) chains – Setting specifications for operation

! IMPORTANT

(Connection and operation specifications:)

- Operate with check chains slack
- (PTO operation:)
 - (Operate with the) Power Take-Off (PTO) level
 - 1000 RPM operation
 - Clockwise rotation
- 25.4 - 102 mm (1.0 - 4 in) Maximum (MAX) – (Offset height between the tractor spline shaft and the machine gearbox input spline shaft)

Adjust check chains to limit accidental lowering of the tongue. See operator's for additional information.

- See "Tractor attachment – Two-point swivel hitch" (3-4).
- See "Tractor attachment – Two-point swivel hitch with tractor quick-hitch" (3-7).

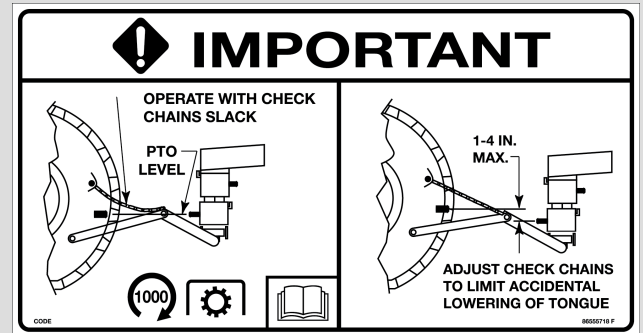
Quantity: 1

Part number:

86555718 – English

86559765 – French Canadian

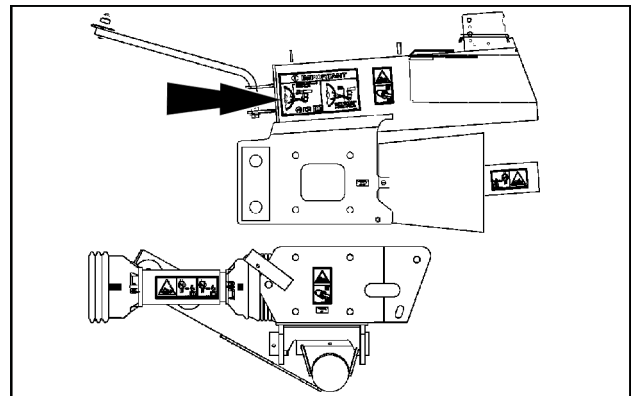
86559766 – Spanish



86555718 7

Location:

Located on the foremost left-hand side of the tongue on machines configured with the two-point swivel hitch.



NHIL16HT00049AA 8

(Drawbar swivel hitch equipped unit only)

Description:

! IMPORTANT

Drawbar swivel hitch and Power Take-Off (PTO) connection to tractor

(Connection and operation specifications:)

- Power Take-Off (PTO):

- 1000 RPM operation
- Clockwise rotation
- Spline diameter:
 - 35 mm (1.375 in)
 - 45 mm (1.750 in)

Tractor spline shaft:

- Distance between the tractor spline shaft and the top of the tractor drawbar:
 - 203 - 305 mm (8 - 12 in)
- Distance between the end of the tractor spline shaft to the drawbar hitch pin:
 - 407 mm (16 in)

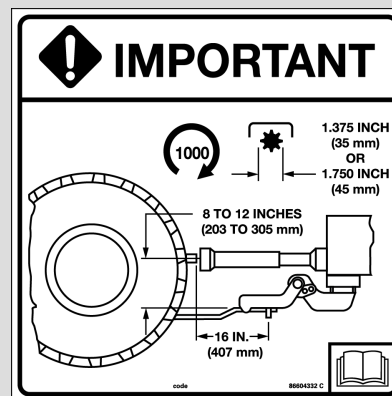
See the operator's manual for additional information.

- See "Machine preparation – Drawbar swivel hitch" (3-9).

Quantity: 1

Part number:

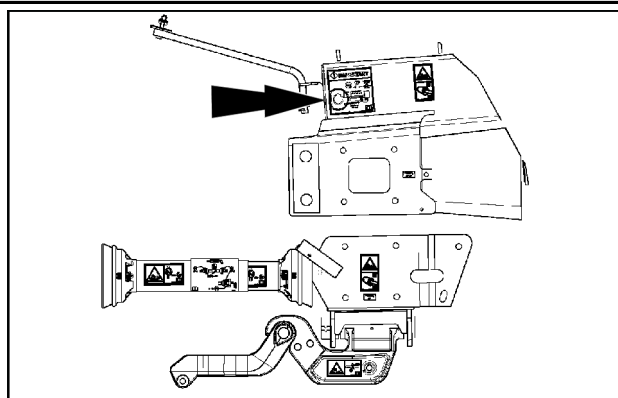
86694332



86604332_C 9

Location:

Located on the foremost left-hand side of the tongue on machines with a drawbar swivel hitch.



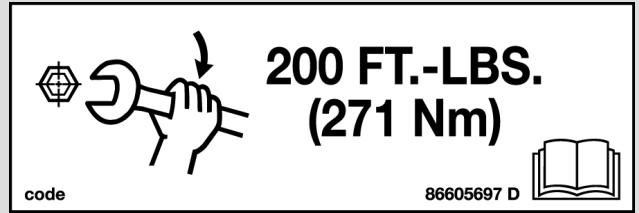
NHIL16HT00050AA 10

(Drawbar swivel hitch equipped unit only)

Description:

Special torque specification –

1. Make sure that you maintain a torque specification of 271 N·m (200 lb ft) applied to the four bolts that secure the extension section of the drawbar swivel hitch to the tractor drawbar.
 - See “Tractor attachment – Drawbar swivel hitch” (3-10) installation information.



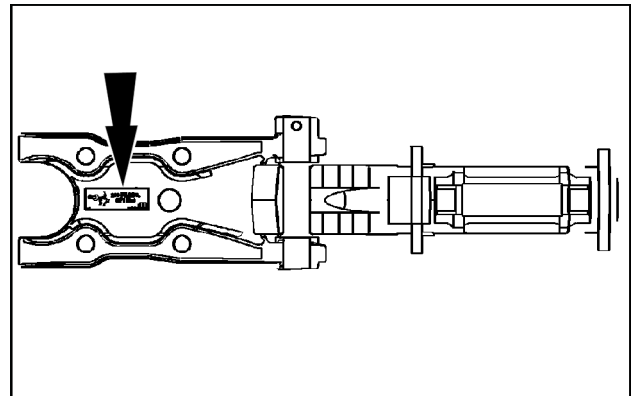
86605697_D 11

Quantity: 1

Part number:
86605697

Location:

Located on the top surface of the extension section of the drawbar swivel hitch.



NHIL16HT00017AA 12

Description:

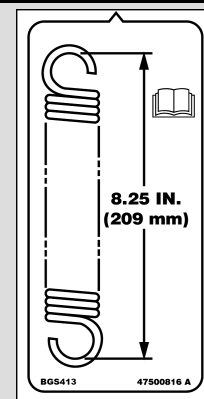
Spring length – Adjust

209 mm (8.25 in)

See “Conditioner drive belt tension” (6-30).

Quantity: 1

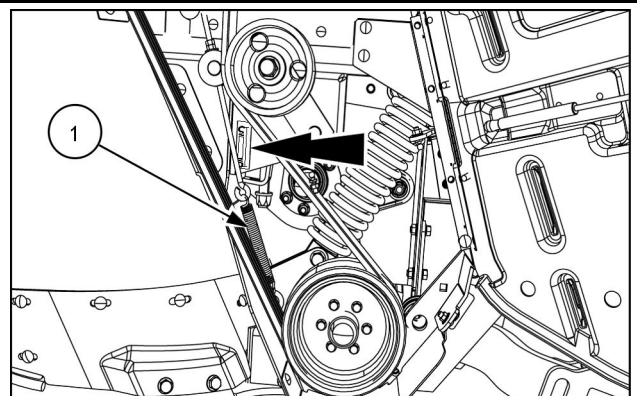
Part number:
47500816



47500816_A 13

Location:

Located on the right-hand side of the header and on the inside surface of the surrounding drive belt shielding, adjacent to and above the conditioner drive belt tension spring (1).



NHIL16HT00003FA 14

(Flail conditioner only)

Description:**Flail hood – Adjust**

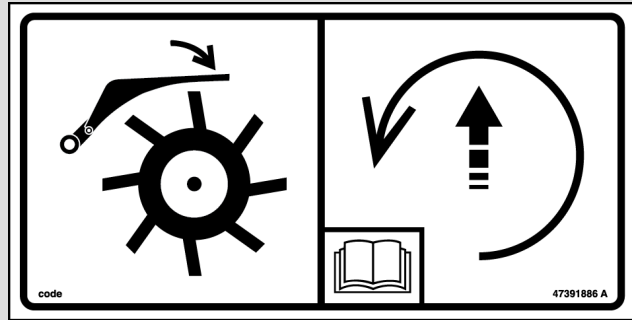
Turn the adjustment handle counterclockwise to decrease the distance between the flails and the flail hood (conditioner plate). This adjustment increases conditioning of the crop.

See “Flail conditioner hood – Adjust” (5-17).

Quantity: 1

Part number:

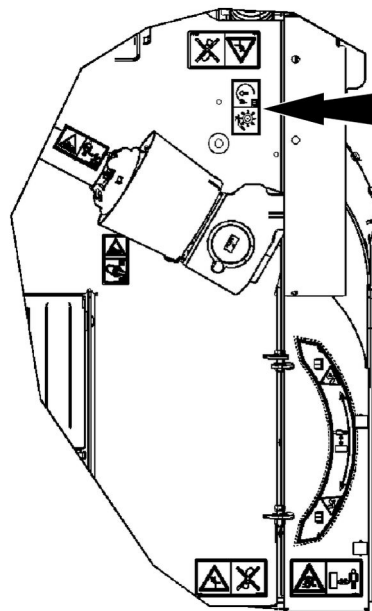
47391886



47391886_A 15

Location:

Located on the left-hand top surface of the top shielding, adjacent to the adjustment handle for the flail conditioner hood.



NHIL16HT00031BA 16

(Roll conditioner only)

Description:

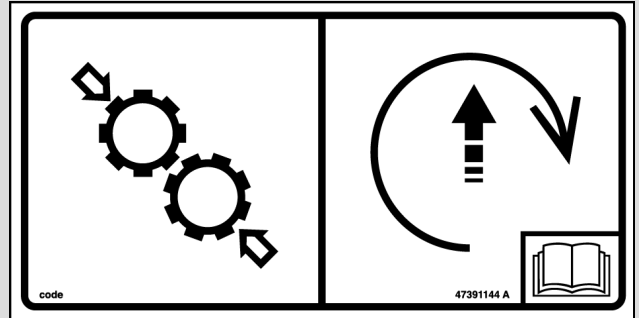
Increase conditioner roll pressure – Adjust

Turn the adjustment handle clockwise to increase roll pressure

NOTE: This informational decal is instructional in specifically showing how to increase conditioner roll pressure by turning the adjustment handle in a counterclockwise direction See “Roll pressure” (5-10).

Quantity: 1

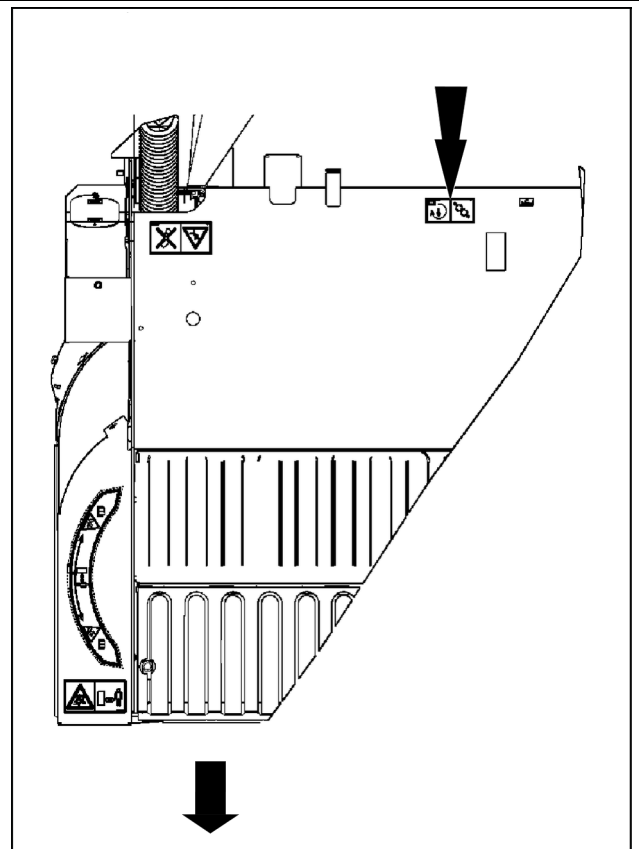
Part number:
47391144



47391144_A 17

Location:

Located on the right-hand top surface and rear edge of the top shielding, adjacent to the adjustment handle for the roll conditioner pressure.



NHIL16HT00032BA 18

Description:**Wheel lug bolts torque specification**

203 N·m (150 lb ft)
See "Wheels and tires – Check" (6-15).

Quantity: 2

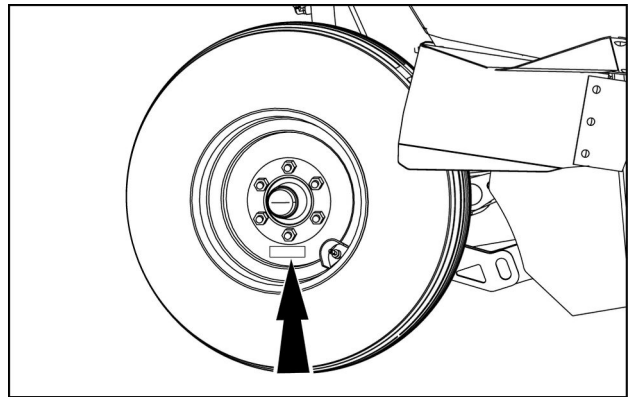
Part number:
47500807



47500807_A 19

Location:

Located on the wheel rim and on the same side as the air valve as indicated.



NHIL16HT00001AA 20

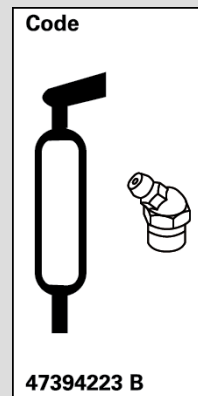
Description:**Grease gun – Grease fitting location – One grease fitting**

The single grease fitting symbol on the decal indicated that there is a single grease fitting in the immediate or adjacent area of this decal.

NOTICE: Not all grease fittings on this machine are indicated by the placement of a grease gun decal.

Quantity: 10

Part number:
47394223



47394223_B 21

Location:

On the header and the tongue, the locations are adjacent to or in the vicinity of a single grease fitting that is not readily visible. The fitting may be on the underside of a component or obscured by surrounding components.

NOTE: All grease locations, along with the grease intervals, are in the "Maintenance chart" (6-13).

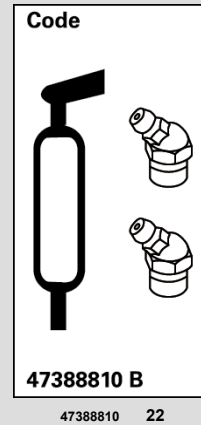
Description:**Grease gun – Grease fitting location – Two grease fittings**

The two grease fittings symbols on the decal indicate that there are two grease fittings in the immediate area or adjacent area of this decal.

NOTICE: Not all grease fittings on this machine are indicated by the placement of a grease gun decal.

Quantity: 6

Part number:
4788810

**Location:**

The two fittings decal placements are in the vicinity of each Power Take-Off (PTO) trumpet shield and indicate the PTO universal joint and yoke grease points that are hidden by the trumpet shield.

NOTE: All grease locations, along with the grease intervals, are in the “Maintenance chart” (6-13).

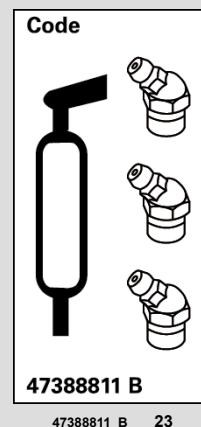
Description:**Grease gun – Grease fitting location – Three grease fittings**

The three grease fittings symbols on the decal indicate that there are three grease fittings in the immediate area or adjacent area of this decal.

NOTICE: Not all grease fittings on this machine are indicated by the placement of a grease gun decal.

Quantity: 3

Part number:
47388811

**Location:**

On the header, the locations are adjacent to or in the vicinity of three grease fittings that are not readily visible. The fittings may be on the underside of a component or obscured by surrounding components.

NOTE: All grease locations, along with the grease intervals, are in the “Maintenance chart” (6-13).

Description:**! IMPORTANT****NO LIFT location – Cutterbar**

NOTICE: Do not lift the header by the cutterbar under any circumstances for machine setup, maintenance, or trailer transport.

Failure to comply will result in sever damage and deformation of the cutterbar.

NOTE: This informational decal is primarily applied for dealer setup purposes as a notice to the dealer personnel to not lift the header by the cutterbar when the dealer removes the header from the factory shipping crating.



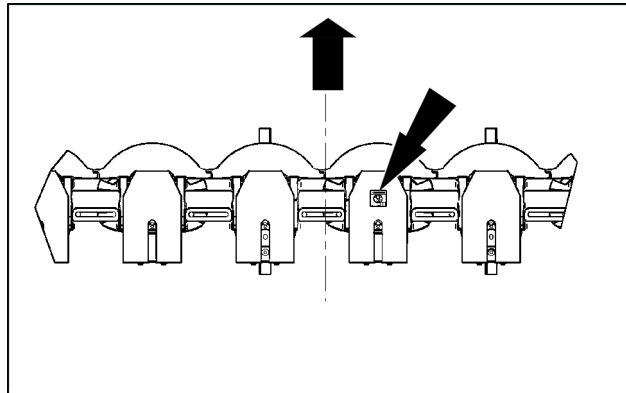
47475754_A 24

Quantity: 1

Part number:
47475754

Location:

Locate on the underside of the cutterbar on the skid shoe that is to the left-hand side of the center of the cutterbar.



NHIL16HT00012AA 25

3 - OPERATING INSTRUCTIONS

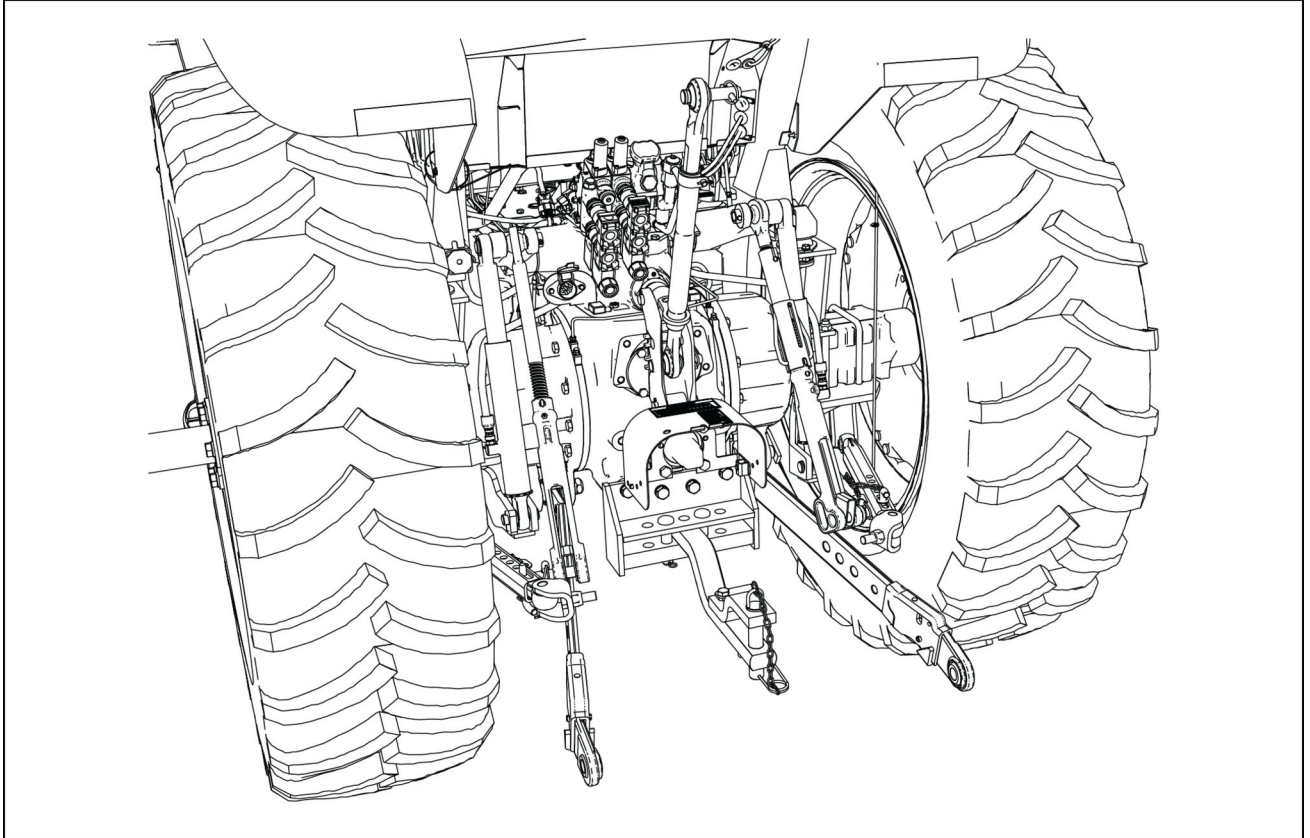
COMMISSIONING THE UNIT

Tractor requirements

⚠ WARNING

Flying objects! Machines with rotary discs can fling foreign objects toward the operator. You must use a tractor with an enclosed cab when you operate a rotary disc cutting machine. Failure to comply could result in death or serious injury.

W0191C



NHIL15HT00905JA 1

To operate the disc mower-conditioner, use a tractor that meets the following requirements:

- Power Take-Off (PTO) rated for **1000 RPM**
- **67 kW (90 Hp)** minimum PTO horsepower
- **ASAE/ASABE** hitch and PTO dimensions conforming to Category 2 or Category 3 specifications

NOTICE: For tractors with a stepped or bent drawbar, you must position the bend to meet **ASAE/ASABE** hitch and PTO specifications. The PTO could separate or bottom out if you do not follow these specifications.

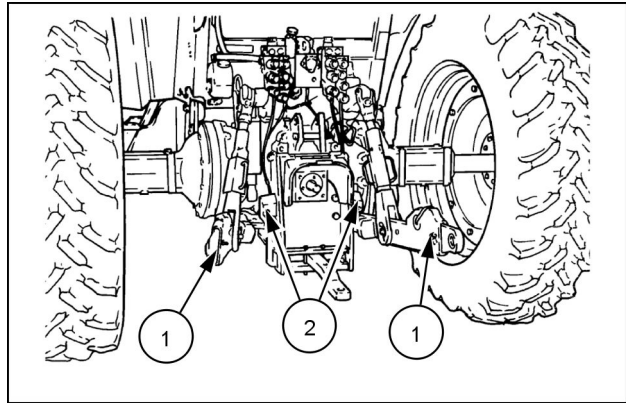
- Two remote hydraulic circuits with a minimum operating pressure of **10342 kPa (1500 psi)**, and a maximum operating pressure of **19305 kPa (2800 psi)**. One of the circuits must be a two-way circuit for the tongue swing cylinder.
- Adequate ballast, wheel spacing, and tire inflation to stabilize the tractor on hillsides

For proper light function, you must connect this machine to a tractor that incorporates a 7-pin conductor electrical socket which conforms to **SAE J560**. If your tractor does not have a 7-pin conductor electrical socket, obtain a connector socket from your NEW HOLLAND dealer.

Machine preparation – Two-point swivel hitch with tractor quick-hitch

You must properly adjust the tractor three-point hitch for correct operation of the swivel hitch:

1. Make sure that the lower lift arms (1) are:
 - Leveled side-to-side
 - Not free to float vertically
 - Secured against side-to-side movement
2. Adjust the sway blocks (2), the check chain, and the stabilizer links to provide a minimum lift arm spacing of **826 mm (32-1/2 in)** for **ASAE/ASABE** Category 2 or Category 3N hitches or **965 mm (38 in)** for Category 3 hitches.



97-1533N 1

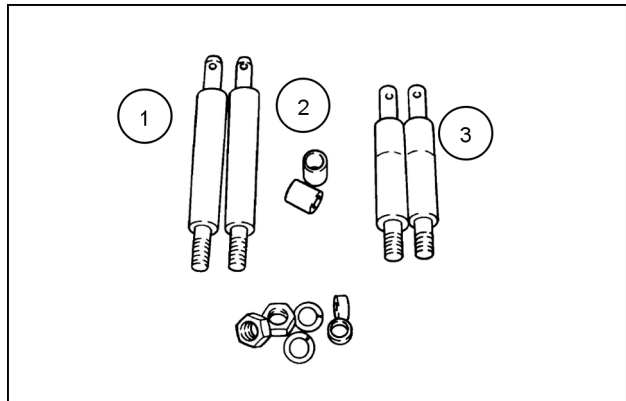
3. Slide the drawbar to the “retracted” position, or remove the drawbar from the tractor to avoid possible interference with the disc mower-conditioner Power Take-Off (PTO) shaft.

NOTE: To make sure that there is a sufficient amount of PTO shaft overlap on a wide variety of tractor hitches, the disc mower-conditioner has two pin-mounting positions.

NOTE: If the tractor has an **ASAE/ASABE** Category 3 or Category 3N hitch, see “Machine preparation – Two-point swivel hitch with tractor quick-hitch” (3-5).

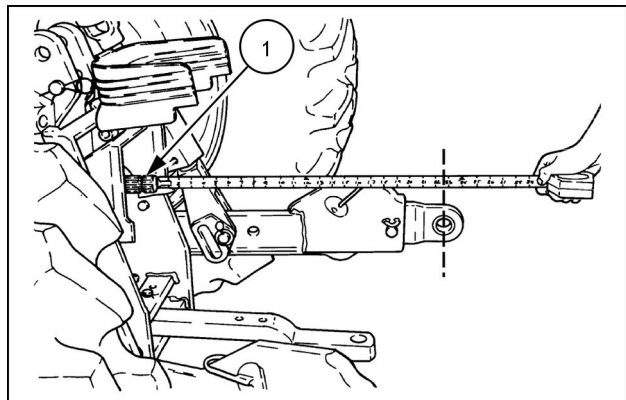
NOTE: If you want to use the disc mower-conditioner with a quick-hitch, you will need to purchase a quick-hitch bushing kit from your authorized NEW HOLLAND dealer.

NOTE: The factory ships the swivel hitch pivot tongue disc mower-conditioner with a set of lift pins, and bushings (2) for use with **ASAE/ASABE** Category 3 and Category 3N hitches. The shorter pins (3) are for use on the disc mower-conditioner on tractors that have an **ASAE/ASABE** Category 2 or Category 3N hitch. Optional longer pins (1) are for use with Category 3 hitches.



97-1534N 2

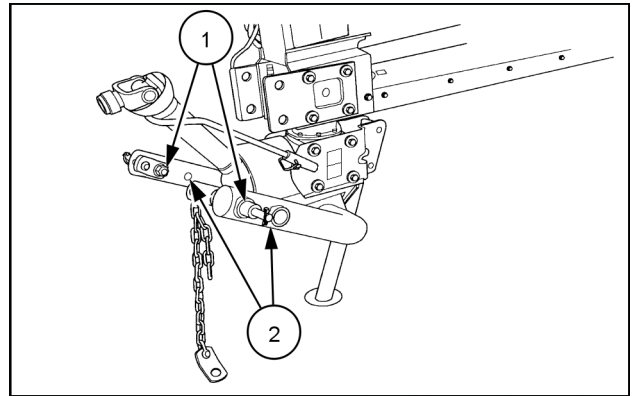
4. Measure the distance between the end of the tractor PTO shaft (1) and the lower link ends while the lower links are level with the ground.



97-1535N 3

NOTICE: Failure to install the lift pins in the correct position could result in failure of the disc mower-conditioner PTO shaft.

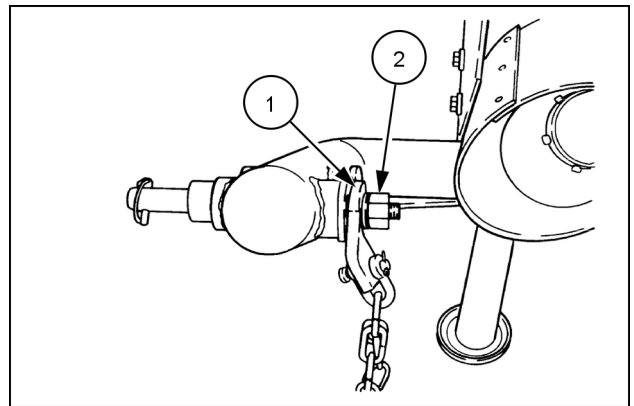
5. If the distance is less than **635 mm (25 in)**, install the appropriate lift pins in the forward holes **(1)** in the hitch. If the distance is **635 mm (25 in)** or greater, install the appropriate lift pins in the rear holes **(2)** in the hitch.



NHIL16HT00055AA 4

6. Install the spacer and the check chain plate **(1)** on the pin.
7. Secure the pin and the check chain with a 1 in nut **(2)**, a lock washer, and a hardened flat washer.
8. Securely tighten the nut to **544 N·m (401 lb ft)**.

NOTICE: Only install one set of pins. Damage to the hitch could occur if you install both the long pins and the short pins.

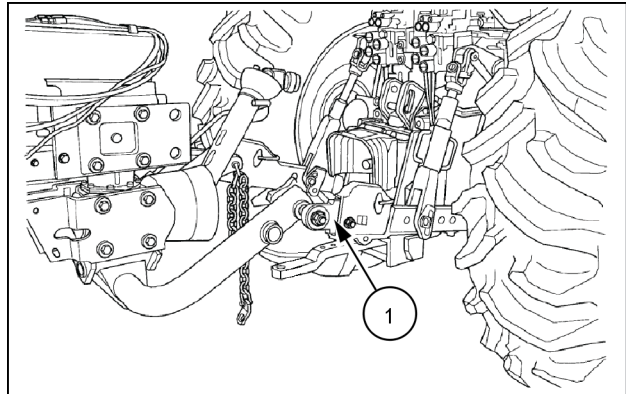


97-1537N 5

Tractor attachment – Two-point swivel hitch

1. Back the tractor up to the unit.
2. Attach the lower lift arms (1) to the pins on the swivel hitch.

NOTE: If you use the disc mower-conditioner with a tractor that has an **ASAE/ASABE** Category 3 or Category 3N hitch, the longer pins are available from your **NEW HOLLAND** dealer.



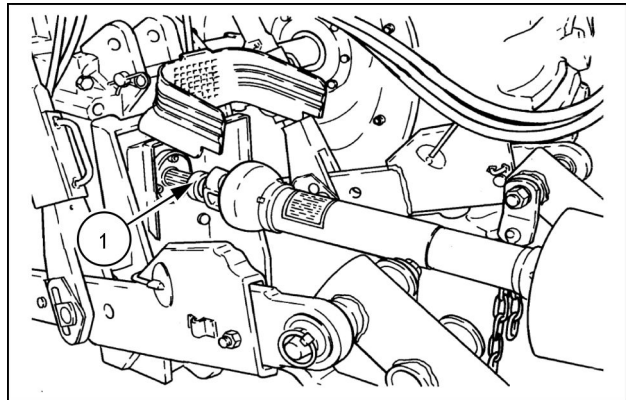
NHIL16HT00290AA 1

3. Pull back on the locking collar (1).
4. Slide the Power Take-Off (PTO) shaft forward onto the tractor shaft until the pins engage in the tractor PTO shaft groove when you release the collar.

NOTE: The yoke where the collar slides must be free of paint and rust and must be kept lubricated with oil for the collar to slide freely.

5. Try to slide the PTO shaft off of the tractor shaft to verify that the PTO shaft is properly locked.

NOTE: To remove the shaft, pull back on the collar to unlock the pins and remove the PTO. The swivel hitch and the PTO shaft are designed to fit on the majority of tractors with no danger of bottoming out if the lower lift arms are inadvertently raised, as long as you install the swivel hitch lift pins in the correct position.

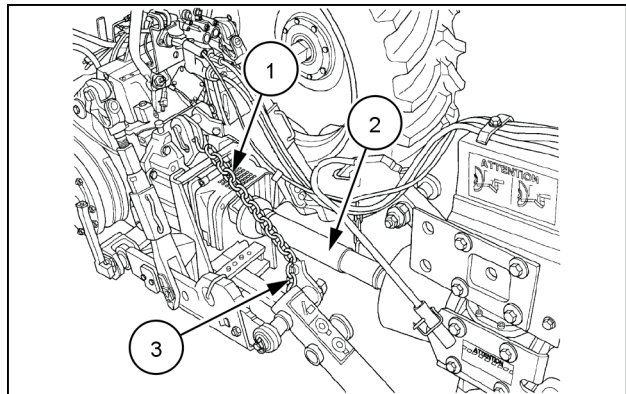


97-1539RN 2

6. After you attach the disc mower-conditioner to a tractor for the first time, slowly raise the lower lift arms to make sure that the implement PTO shaft does not bottom out. If the PTO shaft will bottom out, refer to the tractor operator's manual for information on how to limit the up-travel of the three-point hitch.

NOTICE: Failure to limit the up travel of the three-point hitch could result in damage to the primary PTO drive shaft and the tractor.

7. Attach the check chain (1) to the top link mounting position on the tractor with the tractor top link mounting pin.
8. Raise the tractor three-point hitch until the input shaft centerline of the swivel hitch gearbox is **69 cm (27 in)** off of the ground.
9. Adjust the check chain so that it is as short as possible with the hitch in this position.



NHIL16HT00291AA 3

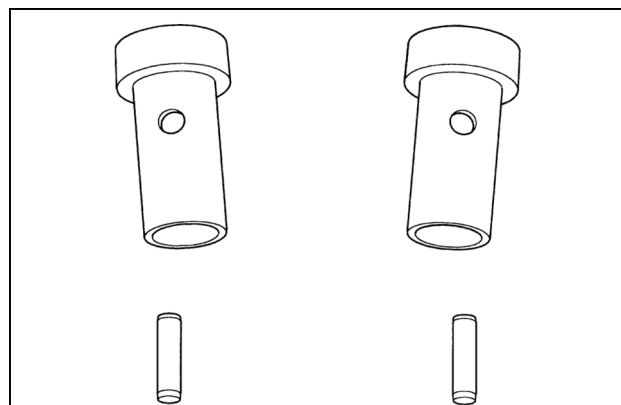
NOTE: Excess chain (3) should be at the implement lift pin to prevent possible damage to the tractor shielding and the PTO. The check chain prevents inadvertent lowering of the hitch, which could pull the PTO shaft apart. The check chain is not intended to carry the weight of the tongue. The check chain should become tight and prevent the hitch from lowering more than **25 - 102 mm (1 - 4 in)** from the initial position.

NOTICE: Failure to properly use the check chain could pull the primary PTO shaft apart. This could result in damage to the PTO shaft and to the tractor.

Machine preparation – Two-point swivel hitch

NOTE: If you are going to use the disc mower-conditioner on a tractor with an **ASAE/ASABE** Category 2, Category 3N, or Category 3 quick-hitch, you must purchase a quick-hitch bushing kit from your authorized NEW HOLLAND dealer parts department. You must use the quick-hitch bushing kit with the optional longer pins.

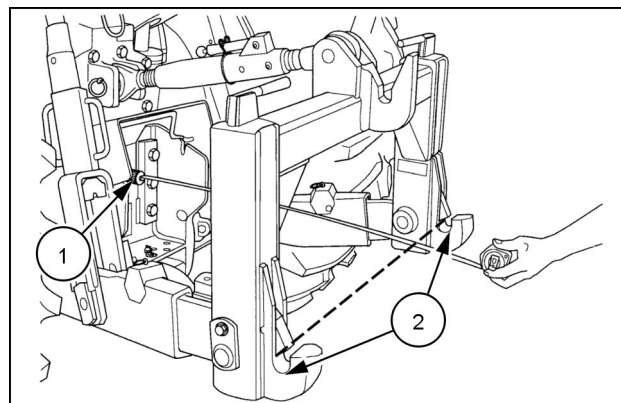
NOTE: The optional longer pins are available from your NEW HOLLAND dealer.



19996747N 1

NOTE: In order to ensure that a sufficient amount of Power Take-Off (PTO) shaft overlap exists on a wide variety of tractor hitches, the disc mower-conditioner has two pin-mounting positions.

1. Measure the distance between the end of the tractor PTO shaft (1) and the lifting points on the quick-hitch (2) with the lower links positioned level.

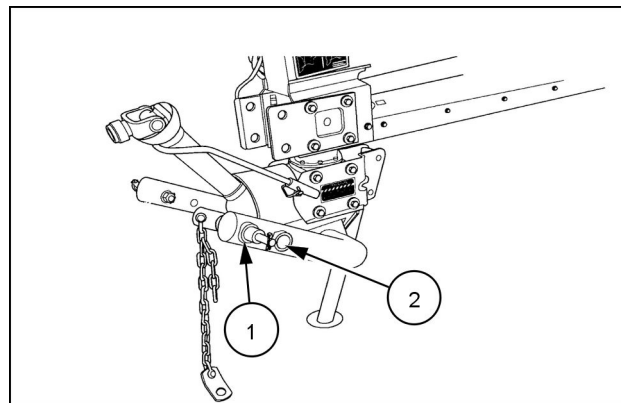


19996748N 2

2. If the distance is less than **635 mm (25 in)**, install the appropriate lift pins in the forward holes (1) in the hitch. If the distance is **635 mm (25 in)** or greater, install the appropriate pins in the rear holes (2) in the hitch.

NOTE: In most cases, using a quick-hitch will require installation of the pins in the rear hole location. Always measure to be sure.

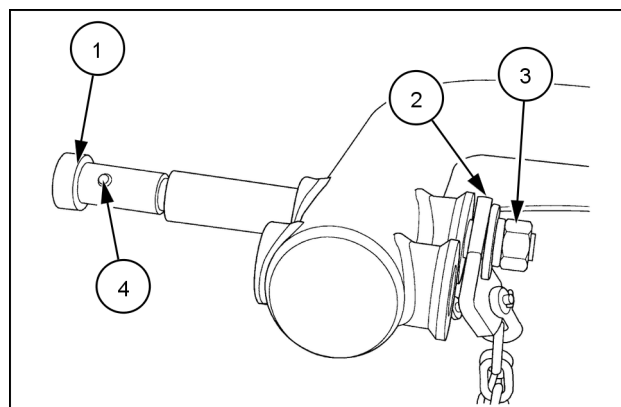
NOTICE: Failure to install the lift pins in the correct position could result in failure of the disc mower-conditioner PTO shaft.



19985198N 3

3. Install the pins in the hitch.
4. Install the spacer and check chain plate (2) on the pin.
5. Secure the pin and check chain using a 1 in nut (3), lock washer, and hardened flat washer. Tighten securely to **544 N·m (401 lb ft)**.
6. Install the quick-hitch bushings (1) onto the lift pins and retain with the pins (4) from the bushing kit.

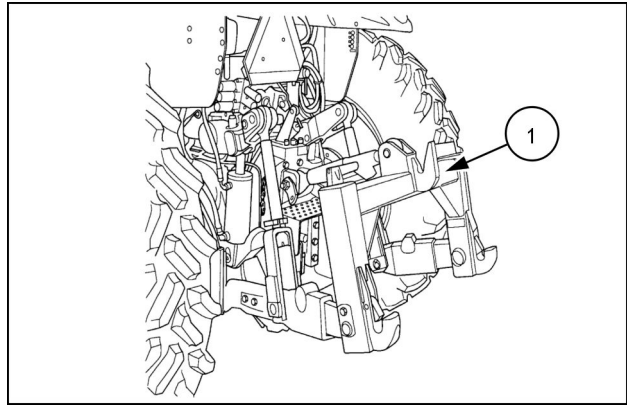
NOTICE: Only install one set of pins. Damage to the hitch could occur if you install both the long pins and the short pins.



19996749N 4

NOTE: Adjust the top link of the tractor to the shortest position so that the quick-hitch (1) leans toward the tractor. This will prevent the contact between the upper portion of the quick-hitch and the tongue of the disc mower-conditioner during sharp turns and when you travel over uneven terrain.

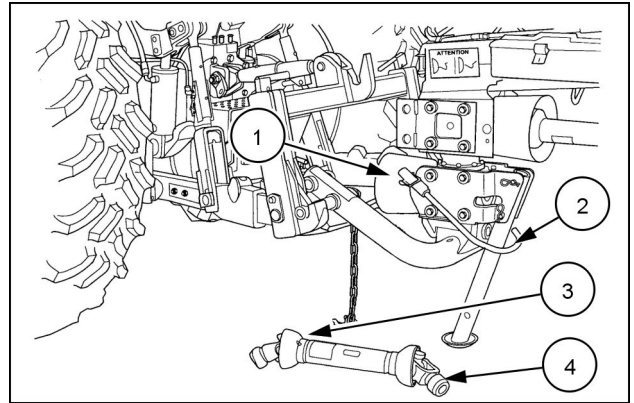
NOTE: Failure to adjust the quick-hitch towards the tractor may cause damage to the tongue of the disc mower-conditioner.



19996752N 5

Tractor attachment – Two-point swivel hitch with tractor quick-hitch

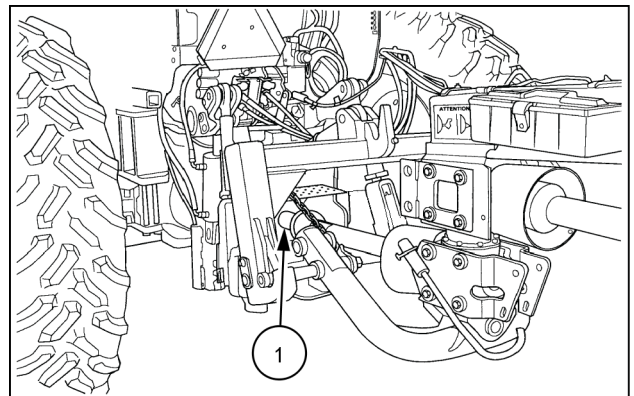
1. Remove the primary Power Take-Off (PTO) shaft (3) from the disc mower-conditioner and place the PTO shaft on the ground in a safe location away from the tractor or the front of the hitch.
2. Remove the PTO support (2) from the hitch to prevent interference between the PTO and the PTO support and the quick-hitch.
3. Install the support upside down so that the support faces the rear of the header.
4. Install the snap pin (1) to secure the PTO support into the hitch.



19986750N 1

NOTICE: Failure to remove the PTO and reverse the PTO support may cause them to contact the quick-hitch and damage the PTO and/or the PTO support.

5. Back the tractor up to the disc mower-conditioner.
6. Attach the lift pins on the hitch of the disc mower-conditioner to the quick-hitch.
7. Lock the quick-hitch over the lift pins to make sure that the pins capture in the quick-hitch.
8. Pull back on the locking collar (1) and slide the PTO shaft forward onto the tractor shaft until the pins engage in the tractor PTO shaft groove when you release the collar.
9. Loosen the locking bolt (4) and slide the rear half of the PTO shaft over the machine splines.
10. Tighten the locking bolt (4) to secure the rear half of the PTO shaft to the machine.



NHIL16HT00292AA 2

11. Try to slide the PTO shaft off of the tractor shaft to make sure that it is secure on the shaft.

NOTE: To remove the shaft, pull back on the collar to unlock the pins and slide the PTO off.

NOTE: The design of the swivel hitch and the PTO shaft is to fit the majority of tractors with no danger of bottoming out if you inadvertently raise the lower lift arms as long as you install the swivel hitch lift pins in the correct position.

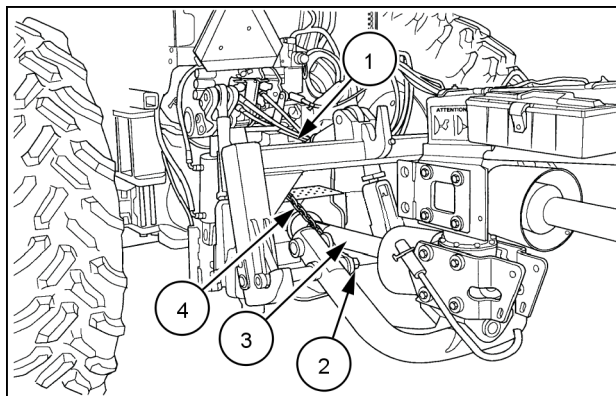
NOTICE: Failure to limit the up-travel of the quick-hitch could result in damage to the primary PTO drive shaft and the tractor.

12. After you attach the disc mower-conditioner to the tractor for the first time, slowly raise the lower lift arms to make sure that the implement PTO shaft does not bottom out.
 - If the PTO shaft will bottom out, refer to the tractor operator's manual for information on how to limit the up-travel of the quick-hitch to prevent damage to the PTO shaft.

13. Attach the check chain plate of the disc mower-conditioner hitch to the top link mounting pin on the tractor.

NOTE: You may need to replace the top link bolt or pin (1) on the tractor with a longer bolt to properly attach the check chain plate.

14. Attach the check chain (4) to the top link mounting position on the tractor with the tractor top link mounting pin (1).
15. Raise the tractor three-point hitch until the disc mower-conditioner PTO shaft (3) is level.



NHIL16HT00292AA 3

NOTICE: Failure to properly use the check chain could cause the primary PTO drive shaft to pull apart. This could result in damage to the drive shaft and the tractor.

16. Adjust the check chain as short as possible with the hitch in this position.

NOTE: Excess chain should be at the implement lift pin (2) to prevent possible damage to the tractor shielding and PTO. The check chain should not carry the weight of the tongue, but should prevent an inadvertent drop of the hitch, which could cause the PTO shaft to pull apart.

NOTE: The check chain should become tight when you lower the lift arms to prevent the a drop of the hitch of more than 25 - 102 mm (1 - 4 in) from the PTO shaft level position.

Machine preparation – Drawbar swivel hitch

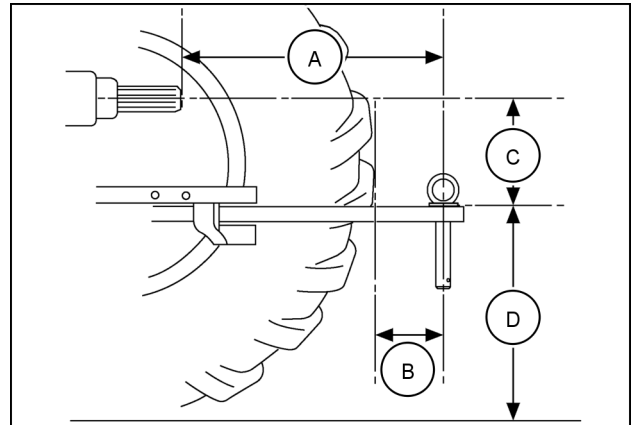
NOTE: The disc mower-conditioner with a drawbar swivel hitch requires a distance of **406 mm (16 in)** from the end of the tractor Power Take-Off (PTO) shaft to the center of the hitch point on the tractor drawbar. The same distance is necessary whether you use a **1000 RPM** PTO with a **1.375 in** diameter spline shaft or a **1000 RPM** PTO with a **1.750 in** diameter spline shaft.

1. Adjust the tractor drawbar to a distance of **406 mm (16 in)** [dimension (A)] from the end of the tractor PTO shaft to the center of the drawbar hole.

NOTE: Ideally the top of the tractor drawbar should be **203 - 305 mm (8 - 12 in)** [dimension (B)] below the tractor PTO shaft.

NOTICE: If you position the drawbar too low or too high, it will affect the drive line angle, and may cause the PTO drive shaft to bottom out or pull apart in some conditions.

2. Position the drawbar directly below the PTO shaft.
3. Clamp the drawbar so that it cannot move from side-to-side.
4. Verify that the drawbar height above the ground [dimension (C)] is **330 - 508 mm (13 - 20 in)** for tractors up to **125 Hp**, and **381 - 559 mm (15 - 22 in)** for tractors from **125 Hp** to **160 Hp**.



NOTICE: If you use a tractor with an incorrect PTO-to-hitch dimension you can damage the front PTO and the tractor PTO drive line.

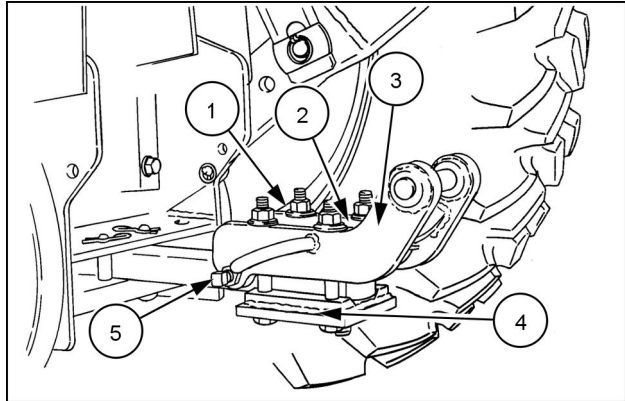
NOTICE: If the tractor has a three-point hitch, adjust the lower links either as high as possible or as low as possible, or remove them, to prevent contact with the tongue when you turn sharply.

NOTICE: The tractor drawbar size for the drawbar swivel hitch application should be **76.2 mm (3 in) x 38.1 mm (1.5 in)** or larger. Excessive use with smaller drawbars may cause premature drawbar failure.

Tractor attachment – Drawbar swivel hitch

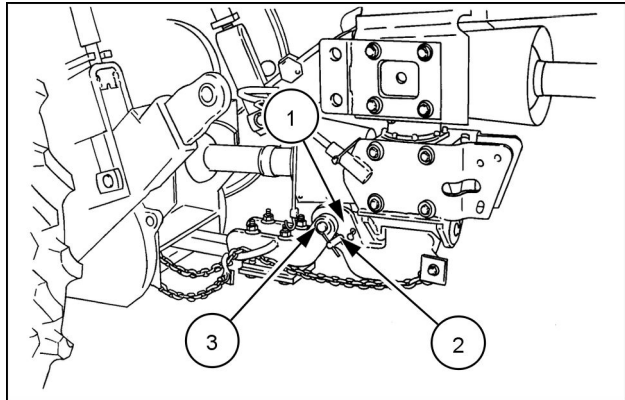
NOTICE: Attach the drawbar extension solidly to the tractor drawbar, clamp the drawbar securely, and tighten set screws to limit side-to-side movement. If you pivot the tongue it will put heavy side-loads on the tractor drawbar.

1. Install the drawbar extension (3) and the clamp (4) on the drawbar.
2. Install the drilled pin (2) down through the hole in the extension and the rear hole in the drawbar.
3. Install the hairpin cotter as close as possible to the bottom of the drawbar.
4. Tighten the 3/4 in nuts (1) evenly to 271 N·m (200 lb ft).
5. Tighten the set screws (5).



19996818N 1

6. Attach the disc mower-conditioner to the tractor drawbar extension with the hitch pin.
7. Remove the pin (2) from the forward hole on the hitch and let the pawl pivot down.
8. Back the tractor in so that the cross pin (3) in the hitch extension is in position under the hook (1) on the hitch.
9. Lower the jack until the pin engages in the hook.
10. Rotate the pawl back up and secure with a pin (2).
11. Insert the safety chain through the loop on the drawbar extension and around the drawbar support.



19996817N 2

NOTE: The safety chain will keep the machine under control if the drawbar extension fails.

12. Pull back on the Power Take-Off (PTO) slide collar and slide the PTO forward onto the tractor shaft until the pins engage in the tractor PTO shaft groove.

NOTE: The collar will slide forward and automatically lock the PTO shaft onto the tractor shaft.

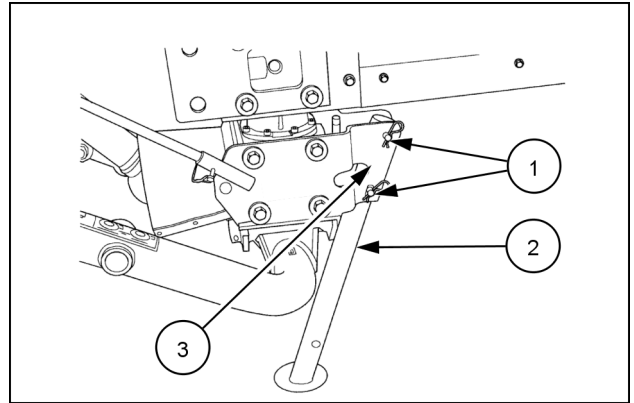
NOTE: On the yoke end, you must keep the area that the collar slides, clean; free of paint, dirt, debris, and rust. You must lubricate the slide-section with oil to allow the collar to slide freely.

13. Check to make sure that the PTO is secure on the tractor shaft.

NOTE: To remove, pull back on the collar to unlock the pins and remove the PTO.

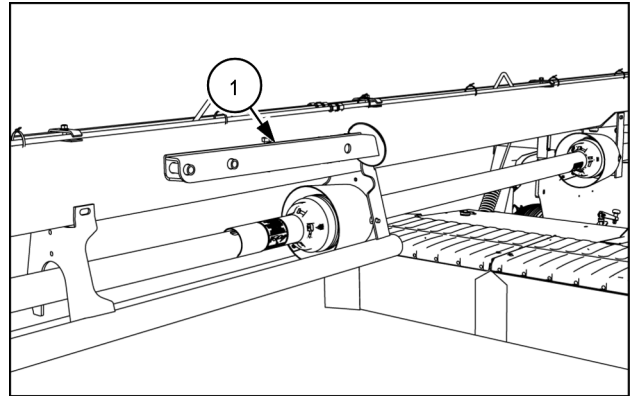
Jack – Two-point swivel hitch

1. After you attach the disc mower-conditioner to the tractor, raise the tractor three-point hitch to raise the jack stand off of the ground.
2. Remove the two hairpin cotters and retaining pins (1), and then remove the jack stand (2) from the support bracket (3).
3. Install one of the retaining pins and hairpin cotters into the support bracket.



19985201N 1

3. Store the jack stand (1) on the mounting stud located on the left-hand side of the tongue.
4. Use one of the retaining pins with a hairpin cotter to secure the jack stand.



NHIL13HT00498AN 2

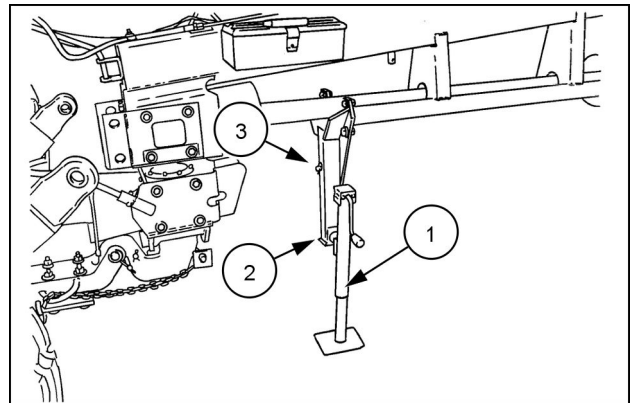
Jack – Drawbar swivel hitch

1. After you attach the disc mower-conditioner to the tractor, turn the hand crank counterclockwise to retract the jack.
2. Pull the pin and remove the jack (1).
3. Store the jack on the side of the tongue (4). Secure the jack with the pin.

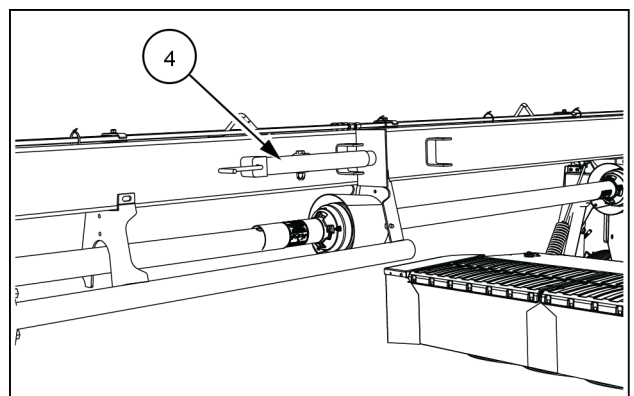
NOTE: Loop the chain around the handle before you insert the pin so that the jack does not unwind during field operation.

4. Store the jack support (2) in the "raised" position and retain it with the pin (3) when you operate the unit.

NOTE: Orient the adjustable jack (4) with the ground pad toward the rear of the tongue, (as shown), to prevent paint damage.



19996816N 1



NHIL13HT00399AA 2

Hydraulic connections

⚠ WARNING

Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

W0178A

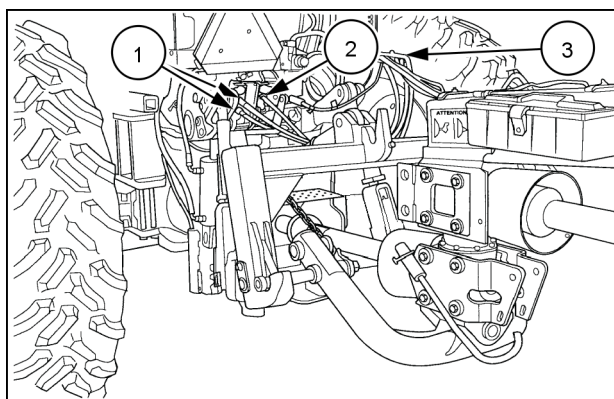
NOTE: Check the tractor operator's manual for instructions on which outlet you should use for single-acting cylinders.

NOTICE: Tractor hydraulic relief valve pressure must not exceed **19305 kPa (2800 psi)**, or machine damage may occur. It will require a minimum of **10342 kPa (1500 psi)** to operate the lift cylinders.

1. Make sure that the couplers on the hydraulic hoses match the tractor couplings.
2. Attach the hydraulic hoses into the pivoting hose support (3).
3. Attach both swing cylinder hoses (1) to the remote outlets of one tractor control valve.

NOTE: If this valve is adjustable, set it for slow hydraulic flow.

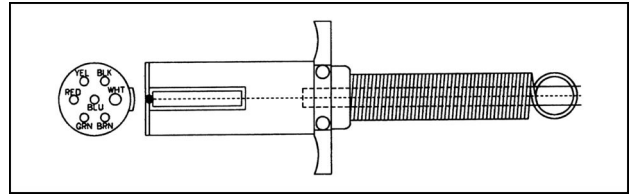
4. Attach the single lift cylinder hose (2) to a remote outlet from the second control valve. Connect the lift cylinder hose so the machine will raise when the hydraulic valve pulls back in the opposite direction of the float position.



NHIL16HT00292AA 1

Electrical connections

Attach the wiring harness connector for the implement lights to the tractor light connector. The wiring harness uses a seven-pin trailer connector which conforms to the **SAE J560** standard.



1431-1-50N 1

⚠ WARNING

Unexpected machine movement!

Air in the system or a high hydraulic flow rate can cause erratic operation. Before swinging the tongue, clear the area of all bystanders and obstructions.

Failure to comply could result in death or serious injury.

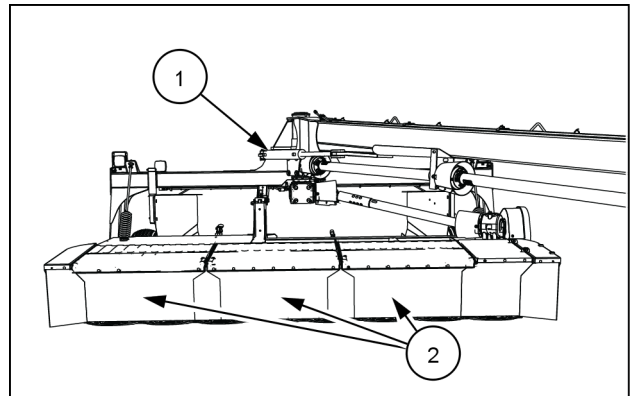
W0236A

Check to make sure that the frame components do not pinch the hydraulic hoses or the wiring harness:

1. Lower the cutterbar shields **(2)** before you move the machine.

NOTICE: Failure to lower the cutterbar shields may result in machine damage.

2. Disengage the tongue swing cylinder lock **(1)**.
3. Maneuver the tractor through both a hard left-hand turn and a hard right-hand turn.
4. Swing the tongue fully to both the left-hand side and to the right-hand side while you raise and lower the header.



NHIL13HT00307AA 2

STARTING THE UNIT

Bleeding air from the lift cylinders

WARNING

Risk of harm during maintenance of the machine!

Before all adjustment, lubrication, and maintenance ALWAYS:

1. Raise the machine. Engage the header lift lock channels.
2. Disengage the Power Take-Off (PTO) drive.
3. Shut off the tractor engine. Remove the key.
4. Engage the tractor parking brake.
5. Make sure that all moving parts have stopped.

Failure to comply could result in death or serious injury.

W1451B

WARNING

Pressurized system! Pressurized fluid can penetrate the skin and cause severe injuries.

ALWAYS wear Personal Protective Equipment (PPE) when you service a pressurized hydraulic system.

ALWAYS relieve all hydraulic system pressure. Make sure the system pressure is at zero before you:

- Connect or disconnect quick-disconnect coupler hoses.
- Open a line or hose connection.

Failure to comply could result in death or serious injury.

W1396A

WARNING

Escaping fluid!

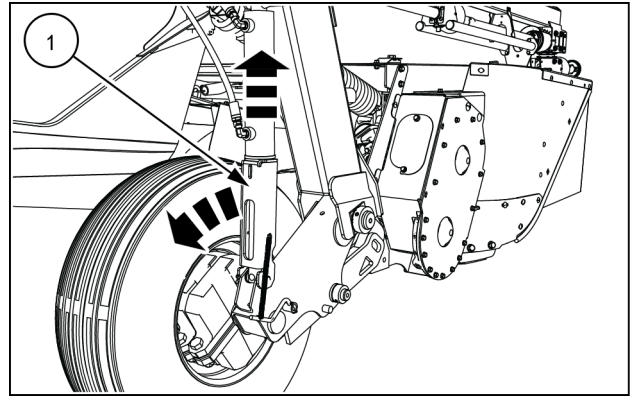
Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

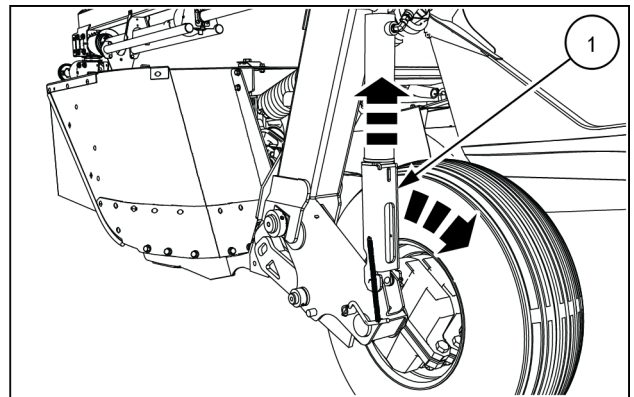
W0178A

If the lift cylinders do not lift the header frame evenly, high enough for the header lift lock channels to engage or disengage, or if one side lifts higher than the other, you must re-phase the cylinders as follows:

1. With the tractor-hydraulics remote lever lower the disc mower-conditioner, and then continue to hold the remote lever in the “lower” position for 10 to 15 seconds, or raise the disc mower-conditioner and continue to hold the remote lever in the “raise” position for 10 to 15 seconds.
2. If the lift cylinders on both sides of the machine still do not extend far enough to disengage the header lift lock channels (1), you must bleed out the entrapped air from the hydraulic system.



NHIL13HT00305AA 1



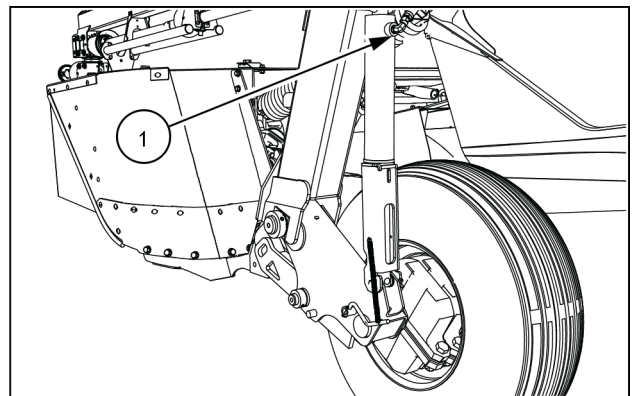
NHIL16HT00027AA 2

Bleed air from the lift cylinders

Bleed the entrapped air from the lift cylinders as follows:

1. Loosen the hose swivel fitting (1) at the upper end of the slave cylinder on the left-hand side of the machine.

NOTE: Use a shop rag or other shielding means for protection from seeping oil when you loosen the slave cylinder fitting.



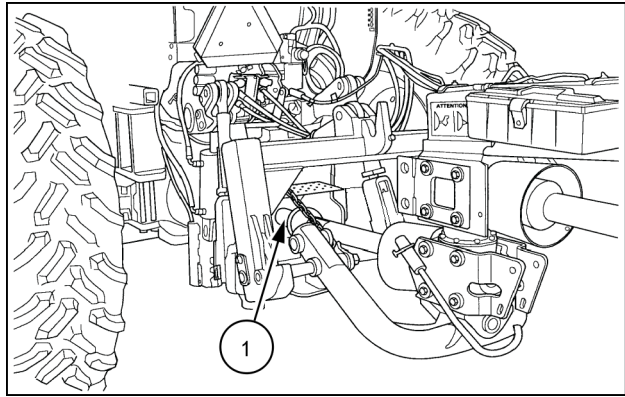
NHIL16HT00027AA 3

2. With the tractor engine at a low idle, move the tractor-hydraulics remote lever to the “raise” position to extend the master lift cylinder, on the right-hand side of the machine, until the oil flow from the slave cylinder loosened fitting is visibly free of air bubbles.
3. Tighten the hose swivel fitting on the slave cylinder.
4. Raise and lower the header several times until all air is bled from the hydraulic system. Repeat the previous steps if necessary.

Power Take-Off (PTO) – Engage

To reduce strain on driveline components, engage the tractor Power Take-Off (PTO) **(1)** at a low engine speed, and then slowly increase the speed to operating PTO speed.

NOTICE: Operating at excessive PTO speeds can cause excessive wear, vibration, and breakdowns.



NHIL16HT00292AA 1

4 - TRANSPORT OPERATIONS

ROAD TRANSPORT

Implement lights

The following chart describes the operation of the implement lights with a tractor that has a seven-pin male connector that conforms to **SAE J560**. See "Tractor seven-pin connector socket – Install" that follows in this section for more information the installation of the **SAE J560** connector socket.

Implement lights

Tractor lights	Left-hand amber	Left-hand red	Right-hand red	Right-hand amber
Headlights OFF	—	Off	Off	—
Headlights ON	—	Dim	Dim	—
Amber flashing lights OFF	Off	—	—	Off
Amber flashing lights ON	Flashing (same rate as right-hand side)	—	—	Flashing (same rate as left-hand side)
Brake lights* (brakes applied) amber flashing lights ON – No turn indicated (no tractor brake lights)	-	Bright*	Bright*	—
	Flashing (same rate as right-hand side)	Bright*	Bright*	Flashing (same rate as left-hand side)
Amber flashing lights ON – No turn indicated (no tractor brake lights)	Flashing (same rate as right-hand side)	Off**	Off**	Flashing (same rate as left-hand side)
Left-hand turn indicated	Increased flash rate	Off, dim, or flashing*** in unison with left-hand side	Off or dim	Illuminated, no flashing
Right-hand turn indicated	Illuminated, no flashing	Off or dim	Off, dim, or flashing*** in unison with right-hand side	Increased flash rate

* The implement brake lights (red) illuminate when you apply the tractor brakes.

The following conditions, noted from the implement lights table require the installation of an implement lighting control module available from an authorized NEW HOLLAND dealer.

** The tractor does not have brake lights.

*** The brake light (red) flashes in unison with the amber flashing lights to indicate the direction of the turn, if the tractor does not have brake lights.

See "Implement lighting control module" (4-3) for installation instructions related to this machine.

NOTE: The implement lighting control module controls the amber lights and the brake light circuits. The tail lights are on only when the tractor park or road lights are on.

NOTE: Check local laws or regulations that concern agricultural machinery lighting and marking.

NOTE: NEW HOLLAND recommends that you turn your headlights ON when you travel on roads.

NOTICE: Your tractor **MUST** have the appropriate electrical connector socket to provide proper brake light functionality if you transport the machine on the road.

The **SAE J560** standard dictates that the number (4) conductor (the red wire) pin of the tractor must connect to the implement brake light circuit so that the brake lights activate when you depress the brake pedal.

Most tractors provide the brake light signal through the number (4) pin in the connector socket. On tractors that do not provide the brake light signal through the number (4) pin in the connector socket, the brake lights on the implement will not function, but the hazard lights, the turn signal lights, and the tail lights will still function.

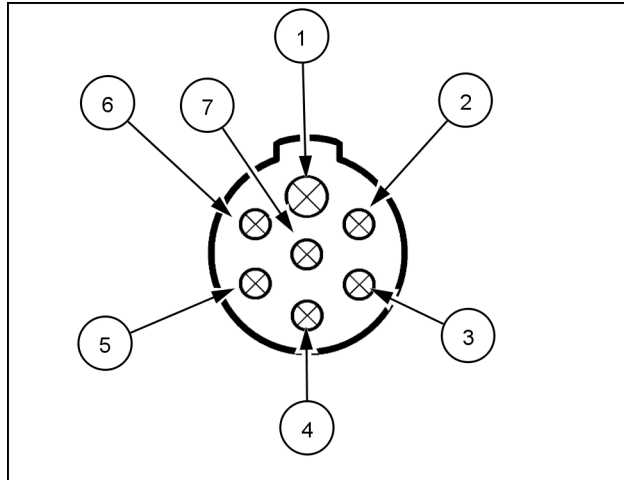
The disc mower-conditioner implement light wiring harness uses a seven-pin trailer socket connector to connect to a tractor seven-pin electrical connector socket that conforms to the **SAE J560** standard. If your tractor does not have a seven-pin connector socket, obtain a connector socket from your authorized NEW HOLLAND dealer.

Tractor seven-pin connector socket – Install

Use the tractor wiring diagram or a test light to identify the tractor wires. Connect the wires to the socket as follows:

Tractor seven-pin connector socket

Pin	Wire Color	Function
(1)	White (WHT)	Ground wire, all lights
(2)	Black (BLK)	Marker and clearance lights (NOT USED)
(3)	Yellow (YEL)	Left-hand side hazard and turn signal – Amber light
(4)	Red (RED)	Brake (stop) – Red lights
(5)	Green (GRN)	Right-hand side hazard and turn signal – Amber light
(6)	Brown (BRN)	Tail lights – Red lights
(7)	Blue (BLU)	Auxiliary (NOT USED)



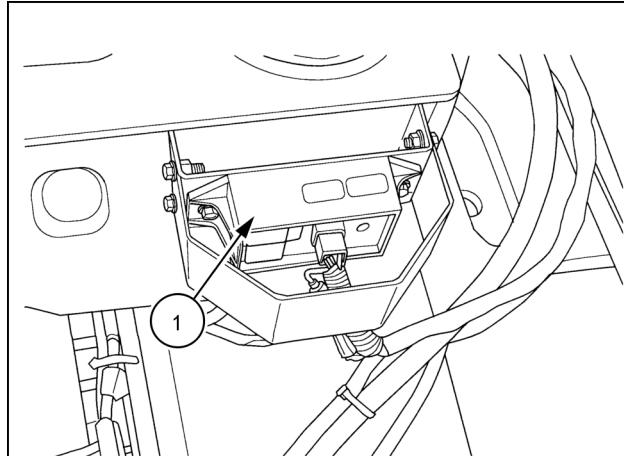
23102063 1

On some tractors, the number (4) pin in the connector socket controls other functions.

On these tractors, this circuit may be on all the time or any time the key switch is in the "ON" position. This will cause the implement brake lights to be on all the time.

You can disconnect the bullet connector in the wiring harness where it attaches to the implement lighting control module (1) in order to disable the brake light circuit on these types of tractors.

NOTE: Remember to connect the brake light circuit again if you attach the machine to another tractor.



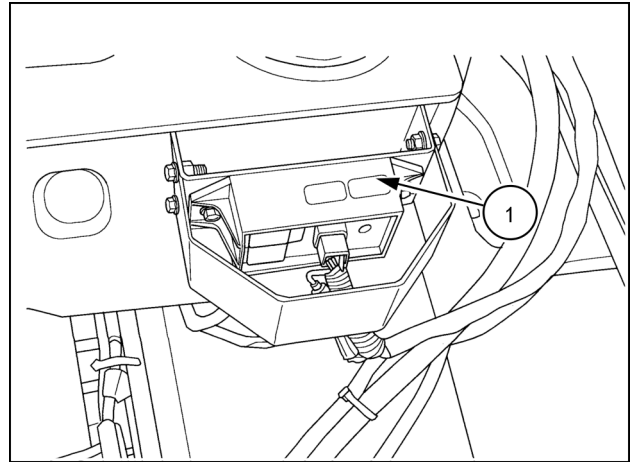
19994424 2

Implement lighting control module

NOTE: An implement lighting control module will also work with tractors that have brake lights.

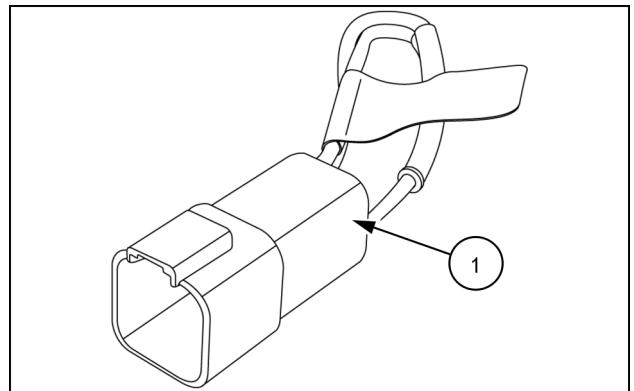
The implement lighting control module provides enhanced turn signal function to tractors without brake lights. Contact your authorized NEW HOLLAND dealer to purchase an implement lighting control module and a protective cover.

The implement lighting control module (1) mounts behind a protective cover on the left-hand side of the machine at the base of the tongue.



19994424 1

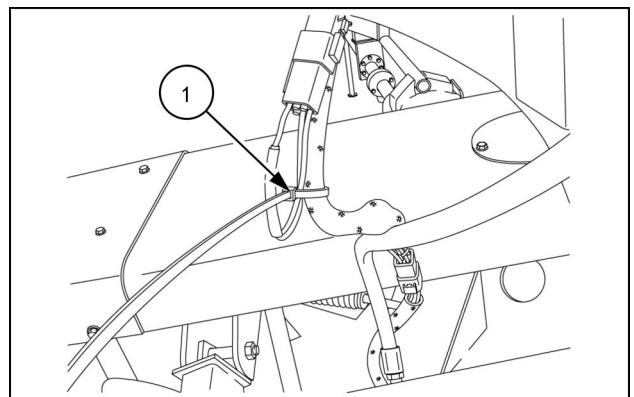
Machines that do not have an implement lighting control module will instead have a small loop harness (1) on the machine wiring harness.



93110023 2

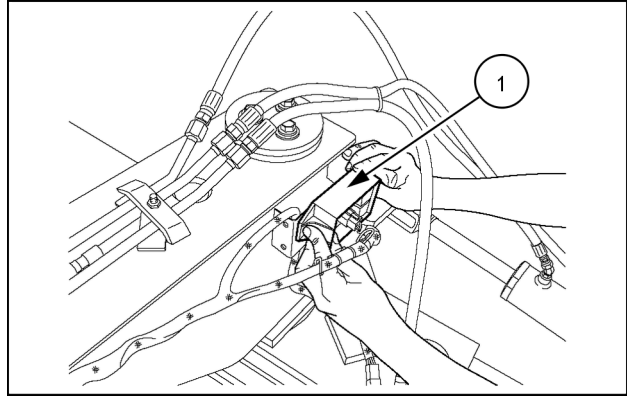
To install an implement lighting control module:

1. Locate the loop harness (1). Cut and discard the wire tie that binds the loop harness to the machine wiring harness.
2. Unplug the loop harness from machine wire harness, and then plug the implement lighting module into the machine wiring harness.



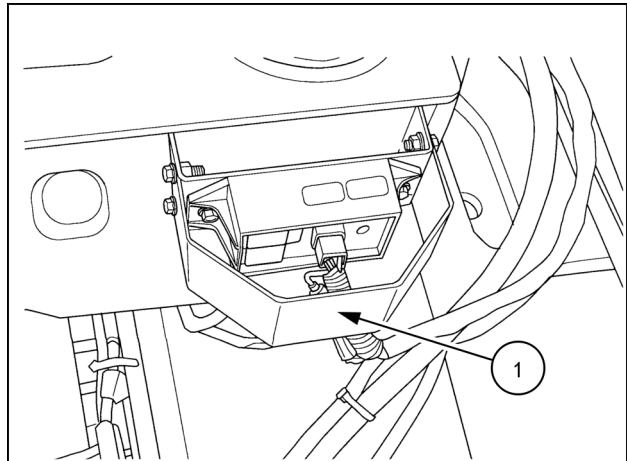
93113259 3

3. Mount the lighting control module **(1)** to the two holes in the light bracket using two 1/4 in – 20 Grade 5 flanged hex bolts and two 1/4 in – 20 flanged locknuts.



93113255 4

4. Install the protective shield **(1)** over the implement lighting control module and over the wiring harness connection using four 1/4 in – 20 Grade 5 flanged hex bolts, four M6 Belleville washers and four 1/4 in – 20 Grade 5 locknuts.



19994424 5

Tongue swing cylinder lock

⚠ WARNING

Transport hazard!

ALWAYS engage the header lift lock channels and the tongue swing cylinder lock before road transport. If you fail to engage the locking devices for road transport and then accidentally engage the tractor hydraulics, the machine can drop onto the road surface and swing into oncoming traffic, roadside obstacles, or ditches.

Failure to comply could result in death or serious injury.

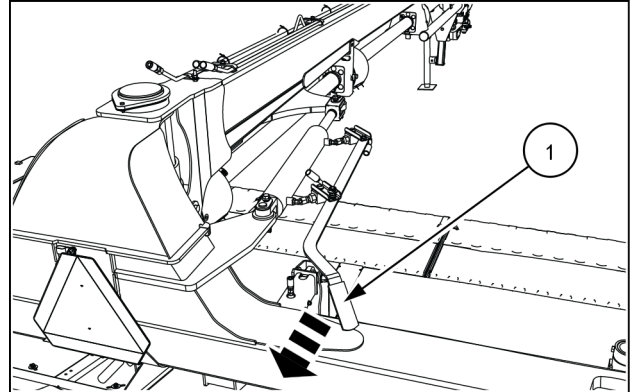
W0235A

Tongue swing cylinder lock – Engage

Before road transport

Engage the tongue swing cylinder lock as follows:

1. Center the header and tongue to align with the rear center of the tractor.
2. Pull the tongue swing cylinder lock handle **(1)** toward the rear of the machine. This will lock the tongue in position for road travel.



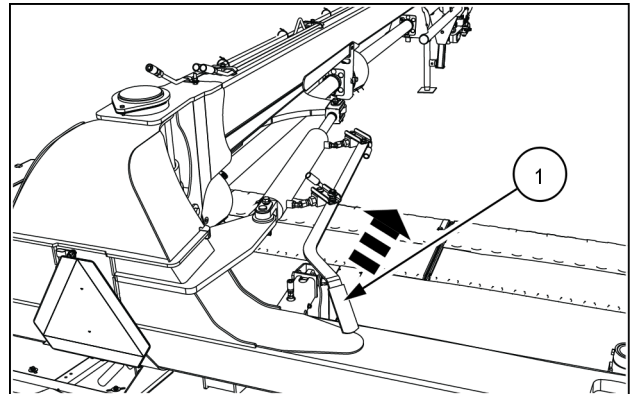
NHIL13HT00314AA 1

Tongue swing cylinder lock – Disengage

Before field operation

Disengage the tongue swing cylinder lock as follows:

1. Push the tongue swing cylinder lock handle **(1)** toward the front of the machine. You can now use the tractor hydraulics to pivot the machine for field operation.



NHIL13HT00314AA 2

Header lift lock channels

⚠ WARNING

Transport hazard!

ALWAYS engage the header lift lock channels and the tongue swing cylinder lock before road transport. If you fail to engage the locking devices for road transport and then accidentally engage the tractor hydraulics, the machine can drop onto the road surface and swing into oncoming traffic, road-side obstacles, or ditches.

Failure to comply could result in death or serious injury.

W0235A

NOTICE: Always engage or disengage both the left-hand side header lift lock channel and the right-hand side header lift lock channel at the same time. If you lower the unit with only one header lift lock channel engaged you could damage the machine.

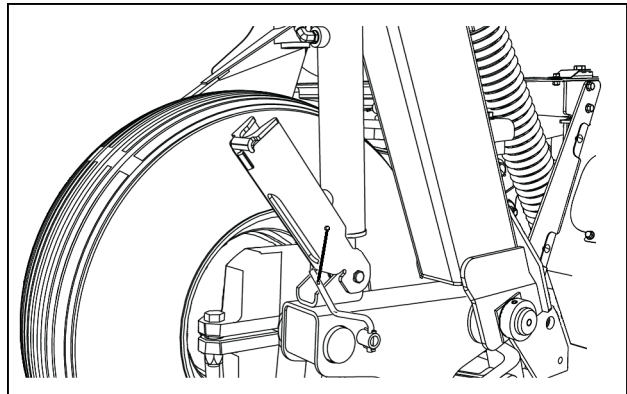
NOTE: You may need to purge air from the hydraulic system, if the cylinders do not extend far enough to release the header lift locks.

See "Bleeding air from the lift cylinders" (3-14).

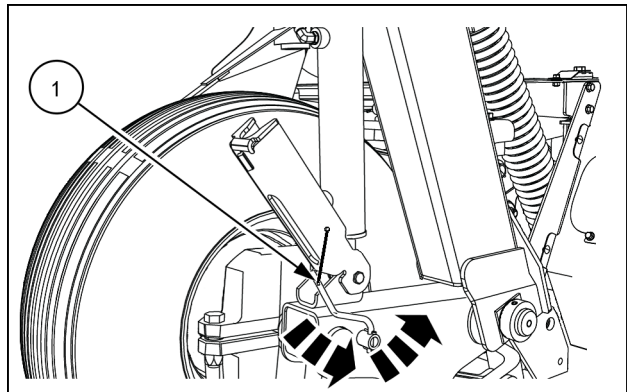
Header lift lock channel – Engage

Engage the header lift lock channels as follows:

1. With the header in the lowered field operation position, Figure 1, pivot the lock lever (1), Figure 2, forward, on both the left-hand side and right-hand side of the machine.
 - The pivot action of the lock levers applies spring tension to the header lift lock channels.
 - When you fully raise the header, the cylinder rods fully extend, and the spring tension from the lock levers pulls the header lift lock channels forward to engage the cylinder rod.

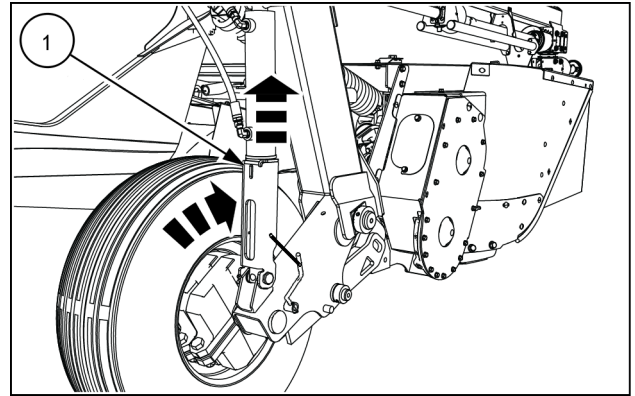


NHIL16HT00023BA 1



NHIL16HT00023BA 2

2. From the tractor cab, use the tractor-hydraulics remote lever to fully raise the header, which fully extends the cylinder rod and removes contact between the header lift lock channel and the lift cylinder body.
 - The header lift lock channels (1) will rotate forward and engage the lift cylinder rods.
3. Lower the header so that the cylinder body rests onto the top of header lift lock cylinder.

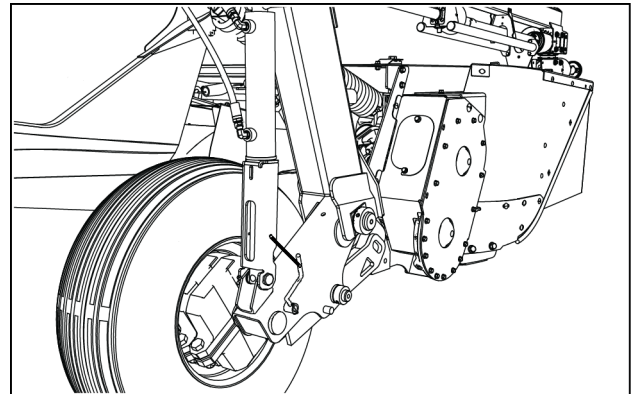


NHIL16HT00024AA 3

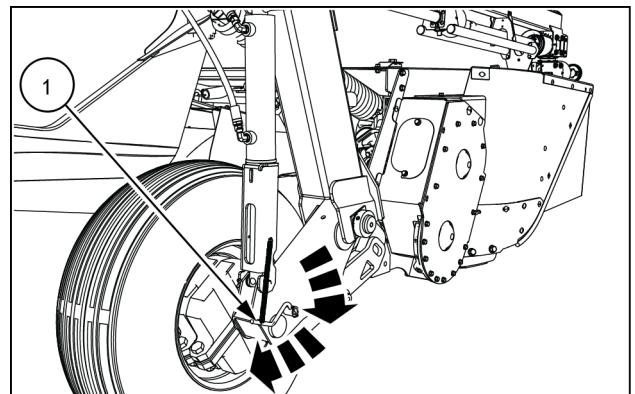
Header lift lock channel – Disengage

Disengage header lift lock channels as follows:

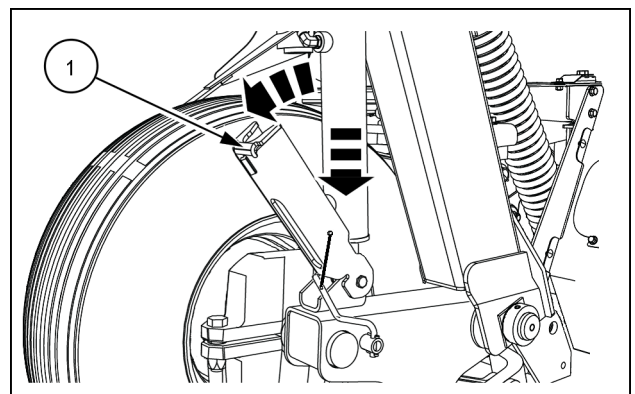
1. With the header is in the raised road transport position, Figure 4 , pivot the lock lever (1), Figure 2 , rearward, on both the left-hand and right-hand sides of the machine.
 - The pivot action or the cocking of the lock levers, applies spring tension to the header lift lock channels.
 - When you raise the header further upwards, in Step 2, the cylinder pressure on the header lift lock channels is released, and the spring tension pulls the header lift lock channels rearward to disengage from the cylinder.
2. From the tractor cab, use the tractor-hydraulics remote lever to raise the header to relieve the cylinder pressure on the head lift lock channels.
 - The header lift lock channels (1) will disengage from the cylinder and rotate rearward.
3. Lower the header to the desired field operation height position.



NHIL16HT00024AA 4



NHIL13HT000305AA 5



NHIL16HT00023BA 6

Towing with a tractor

⚠ WARNING

Transport hazard!

For speeds up to 32 km/h (20 mph), make sure that the weight of a trailed vehicle that is not equipped with brakes **DOES NOT EXCEED 1.5 times the tractor weight**. Stopping distance increases with increasing speed as the weight of the towed load increases, especially on hills and slopes.

Failure to comply could result in death or serious injury.

W0960B

⚠ WARNING

Transport hazard!

ALWAYS engage the header lift lock channels and the tongue swing cylinder lock before road transport. If you fail to engage the locking devices for road transport and then accidentally engage the tractor hydraulics, the machine can drop onto the road surface and swing into oncoming traffic, road-side obstacles, or ditches.

Failure to comply could result in death or serious injury.

W0235A

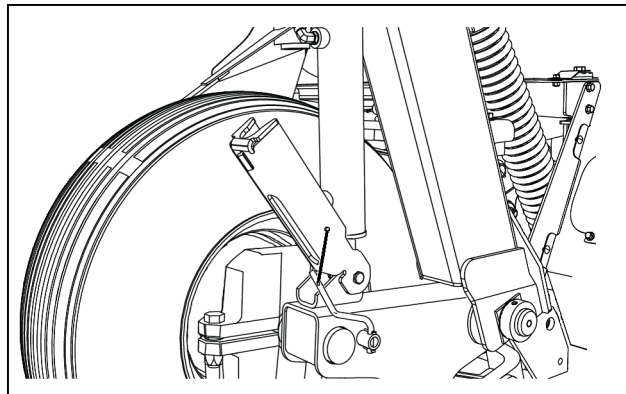
Prepare the machine for road transport

The following instruction assumes that the machine is securely attached to an appropriately sized tractor and is moving from field operation to preparation for road transport.

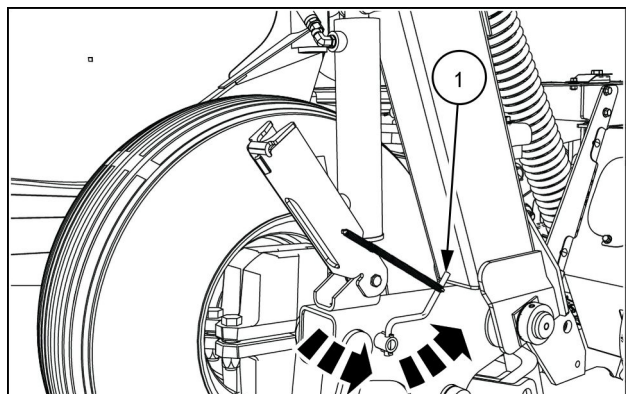
- See “Tractor requirements” (3-1) and the relative hitch connection information.

Header lift lock channels – Engage

1. With the header in the field operation lowered position, Figure 1, pivot the lock lever (1), Figure 2, forward, on both the left-hand and right-hand sides of the machine.
 - The pivot action or the cocking of the lock levers, applies spring tension to the header lift lock channels.
 - When you raise the header upwards, in Step 2, the spring tension pulls the header lift lock channels forward to engage the cylinder.

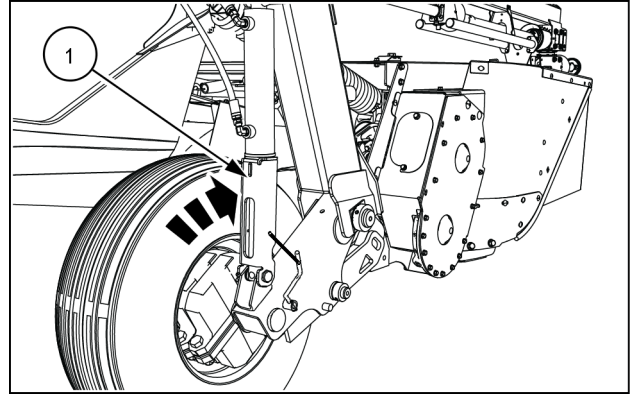


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NHIL13HT00304AA 2

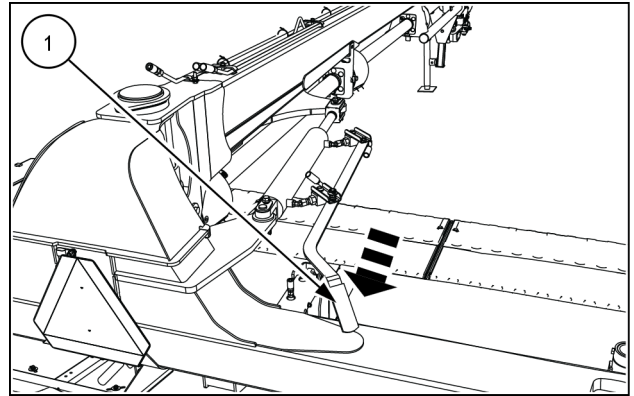
2. From the tractor cab, use the tractor-hydraulics remote lever to fully raise the header.
 - The header lift lock channels (1) will rotate forward to engage the cylinder.
3. Move the tractor-hydraulics remote lever to lower the header, allowing the cylinder contact and rest onto the header lift lock channels.



NHIL16HT00024AA 3

Tongue swing cylinder lock – Engage

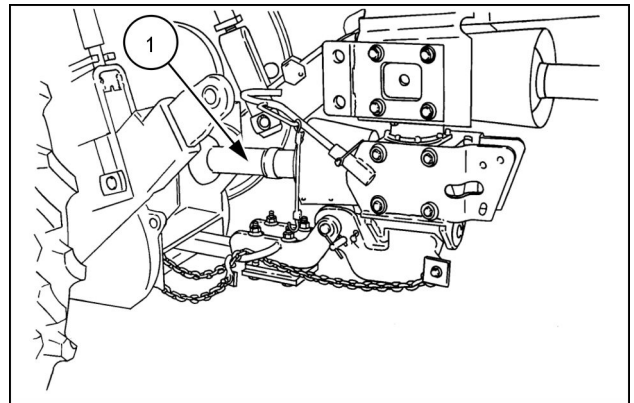
4. Shift the machine as to center the header and tongue in center alignment to the rear center of the tractor for road transport.
5. Pull the tongue swing lock handle (1) rearward to lock the hydraulic cylinder.



NHIL13HT000314AA 4

Additional preparation for road transport

6. Leave the hydraulic hoses connected to the tractor remote outlets.
 - If the hose are disconnected, either connect the hoses to the tractor or make sure that you position the hydraulic hoses in the hanger and secure the hoses to prevent damage.
7. Make sure that you connect the primary Power Take-Off (PTO) shaft (1) to the tractor or, if the PTO shaft is positioned in the hanger, remove the front half of the PTO shaft to prevent damage to the shaft.
8. When towing the disc mower-conditioner on a road or highway, make sure that you connect the flashing lights wiring harness to the tractor, and that the lights function to adequately warn operators of other vehicles.



19996817N 5

NOTE: Consult local governmental regulations for specific lighting requirements.

⚠ WARNING

Transport hazard!

Always connect a safety chain between the machine and the implement. Only use a safety chain with a strength rating equal to or greater than the gross weight of the implement. Failure to comply could result in death or serious injury.

W0395A

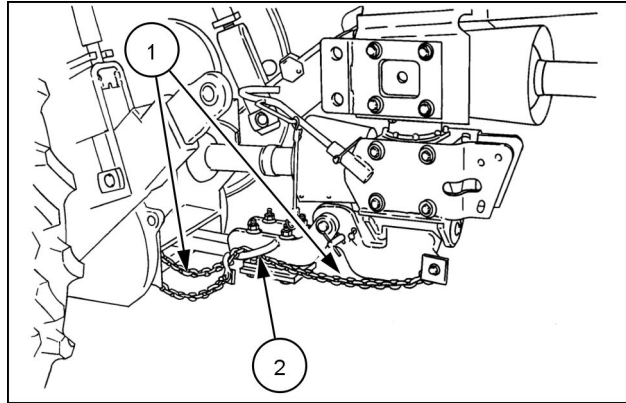
Safety chain – Install

The safety chain is intended to keep the machine under control in the event of loss or failure of the hitch pin.

You must use the safety chain when you tow the disc mower-conditioner on a public road.

You must install and properly connect the safety chain **(1)** from the hitch to the tractor drawbar with the chain routed through a support **(2)** located midway between the machine and the tractor.

If needed, install a clevis onto the drawbar to support the chain.



19996817N 6

Trailing lights – Flashing towing lights and tail lights

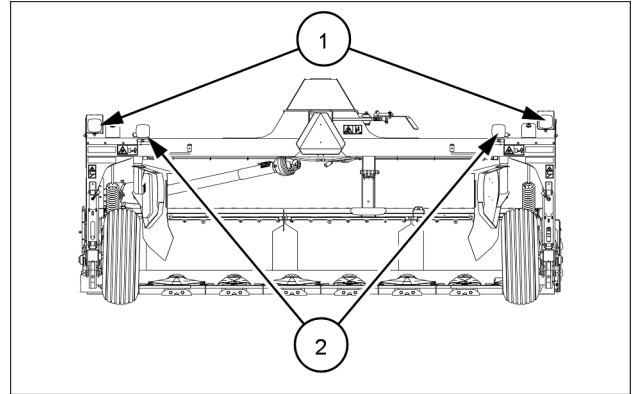
This trailing lights system is intended to improve the machine operator's visibility on public roads and warn other vehicles of your presence on the road and maneuvering actions. The trailing lights system conforms to **ASAE S279.16**.

You must use the amber-flashing towing lights and the red trailing lights when towing the mower-conditioner on a public road.

The amber-flashing towing lights **(1)** are visible to both forward approaching and rear following vehicles.

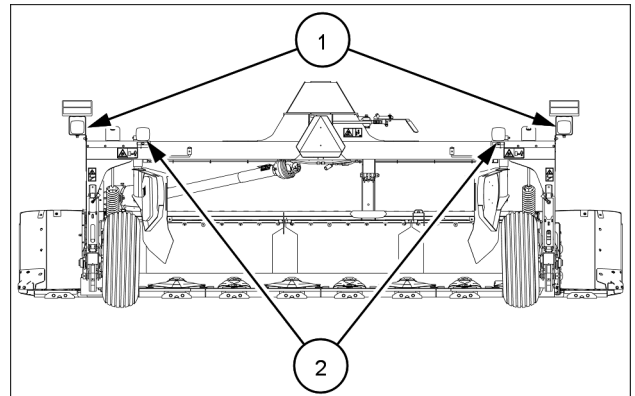
The tail lights **(2)** consist of two red tail lights/brake lights

4.0 m (13 ft) units



NHIL16HT00008AB 7

4.9 m (16 ft) units



NHIL16HT00010AA 8

5 - WORKING OPERATIONS

GENERAL INFORMATION

Before operating check

After the you lubricate the disc mower conditioner, attach it to the tractor and properly adjust it, you may begin working operations in the field.

▲ DANGER

Entanglement hazard!

Disengage the Power Take-Off (PTO), turn off the engine, and remove the key. Wait for all movement to stop before you leave the operator's position. Never adjust, lubricate, clean, or remove a blockage of crop material when the engine is on.

Failure to comply will result in death or serious injury.

D0097B

▲ WARNING

Flying objects! Machines with rotary discs can fling foreign objects toward the operator.

The use of a tractor with an enclosed cab is required when operating a rotary disc cutting machine.

Failure to comply could result in death or serious injury.

W0191B

Before you operate your new disc mower-conditioner for the first time, perform the following items:

1. Read the operator's manual completely and carefully.
2. Make sure that you properly adjust the tractor drawbar.
3. Check the tire pressure: **248 kPa (36 psi)**.
4. Check the torque of the wheel lug bolts before the first field operation, after the first two hours of operation, and then again after 10 hours of operation.
 - Wheel lug bolt torque specification – **203 N·m (150 lb ft)**
 - Check the wheel lug bolt torque after every 50 hours of operation.

NOTICE: Check the wheel lug bolts torque at the specified intervals after any removal and install of the wheels.
5. Make sure that the machine is properly lubricated. Use the maintenance chart as a guide to make sure that no grease fittings have been missed and that all gearboxes are filled to the proper level.
 - See "Maintenance chart" (6-13).
6. Burnish the friction slip clutch to make sure that the friction slip clutch is not locked up, and is functioning properly.
 - See "Friction slip clutch – Burnish (resurface)" (6-57).
7. Do not overspeed the Power Take-Off (PTO) or driveline damage may occur.
8. Before you begin to cut crop in the field:
 - A. Operate the machine at **400 - 600 RPM** for 15 minutes.
 - B. Watch and listen for indications of component interferences or unusual vibrations.
 - C. Use an infrared thermometer to check the surface temperature of all bearing housings and gearboxes for overheating. Paint discoloration the area of the bearing housing and gearboxes is also a potential sign of overheating.
 - If any bearing housing temperature or gearbox temperature exceeds **60 °C (140 °F)** have your NEW HOLLAND dealer service technician check the components for proper assembly.
 - If no problems are detected, operate at rated PTO speed for an additional 15 minutes.
 - D. Check the bearings and gearboxes again for indications of overheating or paint discoloration..
 - If you see or suspect any problems resulting from the pre-operation check, contact your authorized dealer.
 - You must correct any problems before you begin to use this machine to cut crop.

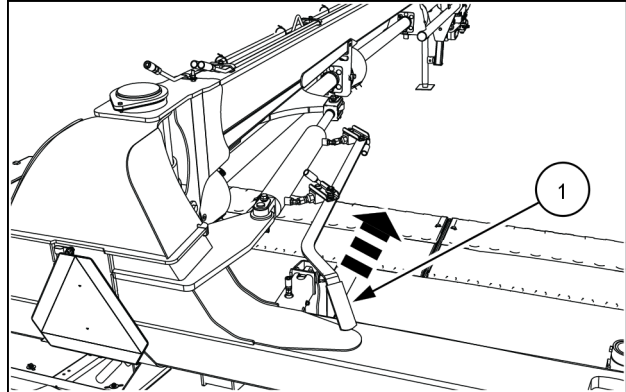
Tongue swing cylinder lock

Tongue swing cylinder lock – Disengage

Before field operation

Disengage the tongue swing cylinder lock as follows:

1. Push the tongue swing cylinder lock handle (1) toward the front of the machine. You can now use the tractor hydraulics to pivot the machine for field operation.



NHIL13HT00314AA 1

Header lift lock channels

⚠ DANGER

Crushing hazard! The header will fall rapidly if the hydraulic lift system fails. ALWAYS engage the header lift lock channels when you work around a raised header. Failure to comply will result in death or serious injury.

D0189A

NOTICE: Always engage or disengage the left-hand side header lift lock channel and right-hand side header lift lock channel at the same time, before lowering the machine. Lowering the machine with only one header lift lock channel engaged can cause damage to the machine.

NOTE: You may need to purge air from the hydraulic system, if the cylinders do not extend far enough to release the header lift lock channels.

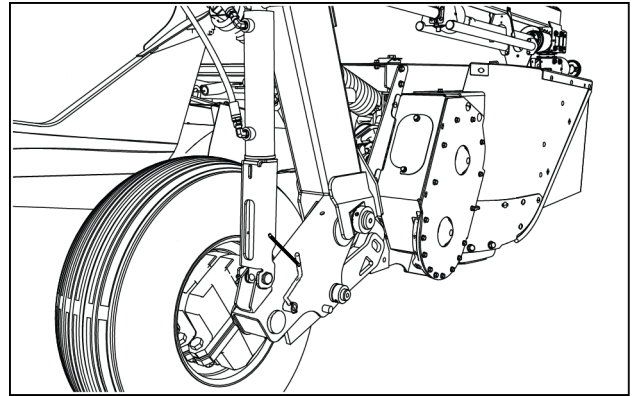
See “Bleeding air from the lift cylinders” (3-14).

Header lift lock channel – Disengage

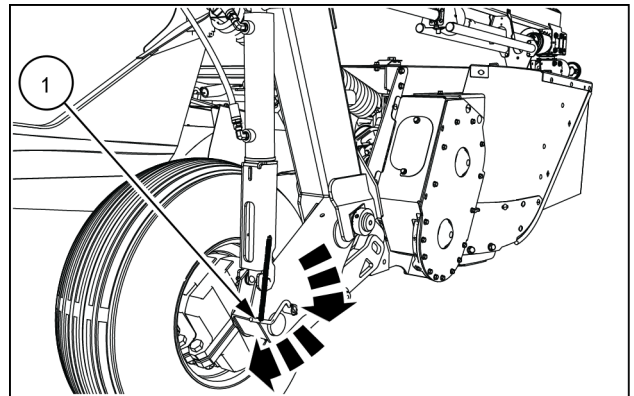
Before field operation

Disengage header lift lock channels as follows:

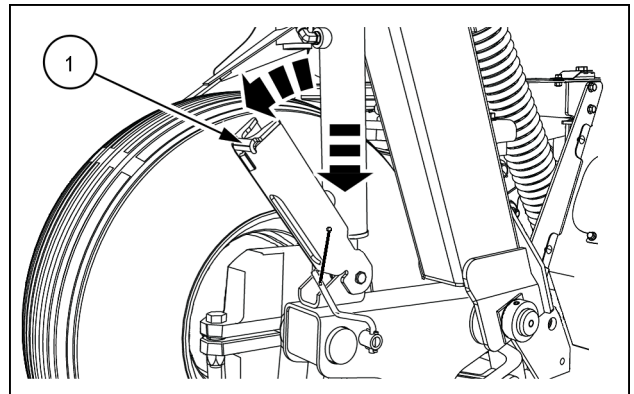
1. With the header in the raised road transport position, Figure 1, pivot the lock lever (1), Figure 2, rearward, on both the left-hand side and right-hand side of the machine.
 - The pivot action or the cocking of the lock levers, applies spring tension to the header lift lock channels.
 - When you raise the header further upwards, in Step 2, the cylinder pressure on the header lift lock channels is released, and the spring tension created by the lock levers pulls the header lift lock channels rearward to disengage from the cylinder.
2. From the tractor cab, use the tractor-hydraulics remote lever to raise the header to relieve the cylinder pressure on the head lift lock channels.
 - The header lift lock channels (1) will disengage from the cylinder and rotate rearward.
3. Lower the header to the desired field operation height position.



NHIL16HT00024AA 1



NHIL13HT00305AA 2



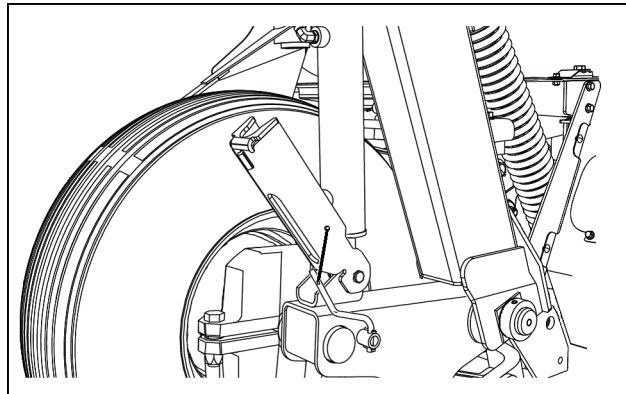
NHIL16HT00023BA 3

After field operation:

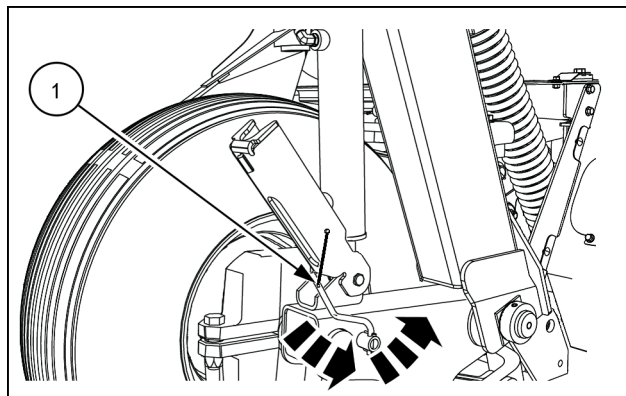
Header lift lock channel – Engage

Engage the header lift lock channels as follows:

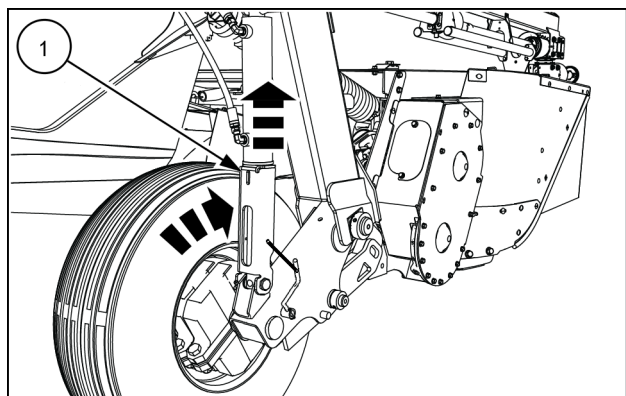
1. With the header in the lowered field operation position, Figure 4, pivot the lock lever (1), Figure 5, forward, on both the left-hand side and right-hand side of the machine.
 - The pivot action or the cocking of the lock levers, applies spring tension to the header lift lock channels.
 - When you fully raise the header upwards, in Step 2, the cylinder rods fully extend, the header lift lock channels are no longer contacting the cylinder body, and then the spring tension created by the lock levers pulls the header lift lock channels forward to engage the cylinder rod.
2. From the tractor cab, use the tractor-hydraulics remote lever to fully raise the header, which fully extends the cylinder rod and removes contact between the header lift lock channel and the lift cylinder body.
 - The header lift lock channels (1) will rotate forward and engage the lift cylinder rods.
3. Lower the header so that the cylinder body rests onto the top of header lift lock cylinder.



NHIL16HT00023BA 4



NHIL16HT00023BA 5



NHIL16HT00024AA 6

Lift cylinders

The header lift cylinders raise and lower the header.

Always lower the header to ground level, or in the case of an installed high stubble kit or cane and biomass harvesting kit, lower the header to the header lift lock channel mid-position before you engage the Power Take-Off (PTO).

Always disengage the PTO when cutting operations are complete and prior to raising the header.

You must engage or disengage the header lift lock channels in conjunction with raising or lowering the header with the lift cylinders outside of performing field cutting operations.

- Before field operation – See “Header lift lock channels” (5-2).
- Before road transport – See “Header lift lock channels” (4-6).

NOTE: The tractor hydraulics must be put in the float position in order for the lift circuit to operate properly. Failure to use the float position may cause one side of the header to raise during field operation.

NOTE: You may need to purge air from the hydraulic system if the cylinders do not extend far enough to release the header lift lock channels.

See “Bleeding air from the lift cylinders” (3-14).

Toolbox

The machine comes with a convenient toolbox (1) for the storage of tools, a grease gun, and spare cutterbar parts.

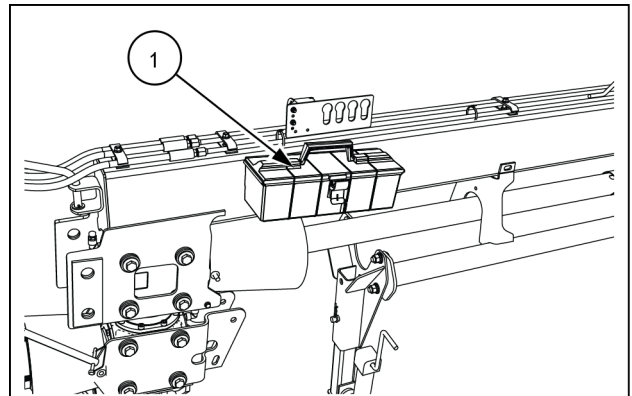
Use a hairpin cotter to keep the toolbox lid closed.

Remove the toolbox as follows:

1. Open the lid, and then remove the hairpin cotter inside
2. Tip the toolbox up off of the support bracket.

Install the toolbox as follows:

1. Position the lip on the back over the top of the bracket, and then tip the toolbox down over the clip.
2. Install the hairpin cotter to retain the toolbox, and then close the lid.



NHIL13HT00313AA 1

ROLL CONDITIONING

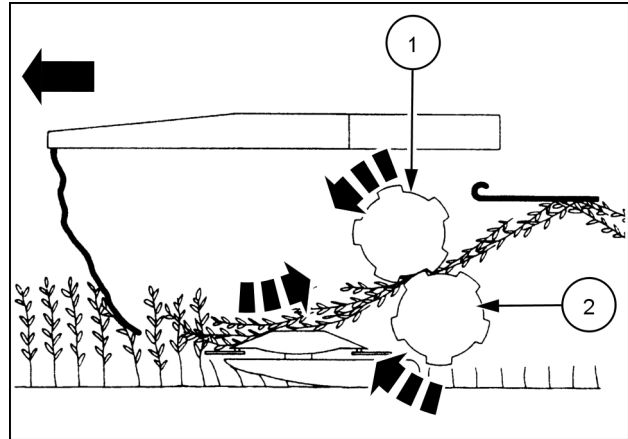
Roll conditioning

Units equipped with a roll conditioning system

The roll conditioning system passes the cut crop through a set of closely-spaced intermeshing rolls with matching lands and valleys.

The rolls crush and crack the plant stem at several points along its length, which wears away the waxy coating and allows moisture to escape.

- There are two conditioner rolls **(1)** and **(2)** in a roll conditioning system.
- The lower conditioning roll **(2)** is stationary in the machine.
- The upper conditioning roll **(1)** can pivot upward and downward to let the crop mat feed through the conditioning rolls without causing a blockage of crop.
- The roll gap and the roll tension affect crop conditioning.



19988033 1

Roll gap

The roll gap is the clearance space between the land (high surface) of one conditioner roll and the valley (low surface) of the opposite conditioner roll.

To obtain peak machine performance and efficiency, check the roll gap before each cutting during the season, and also when cutting different forage crops because each crop will be different.

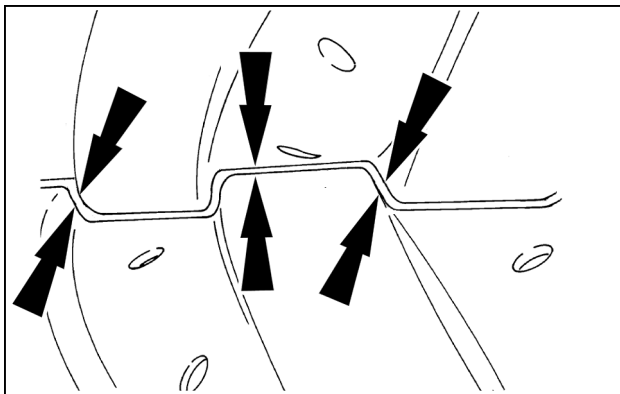
In high-volume crops like Sudan grass and other cane-type crops, increase the roll gap slightly to get better crop flow through the rolls without sacrificing good crop conditioning.

With the rubber conditioner rolls, you must make sure that you center the lands and valleys of the intermeshing conditioner rolls to maintain a uniform distance on all sides of the lands.

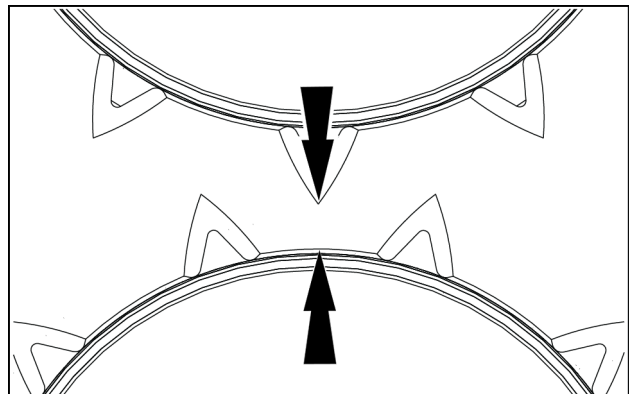
For best roll conditioning performance, maintain a roll gap clearance as follows:

- For rubber conditioner rolls – **0.4 - 3 mm (1/64 - 1/8 in)**
- For steel conditioner rolls – **5 - 7 mm (0.20 - 0.28 in)**

Conditioner rolls – Roll gap configuration



Rubber conditioner rolls



Steel conditioner rolls

To check the roll gap easily and quickly in the field, use the 'one stem method' as follows:

- Take one stem of the crop being cut prior to passing through the conditioning rolls.
- - Insert the single stem into the roll gap between the conditioner rolls at three or four points across the width of the conditioner rolls.
 - The stem should slide between the rolls, with some resistance.
 - If the stem passes through the gap with little or no resistance, set the gap closer.

If you cannot pass the stem between the rolls at all, increase the gap slightly.

Conditioner roll tension

After you set the roll gap, adjust the roll tension. Roll tension is the amount of pressure added to restrict upper roll movement as the crop feeds through the rolls.

Hard-to-condition crops require more tension. Light and easily-conditioned crops require less tension.

Higher conditioner roll tensions increase the pressure exerted on the crop mat as the crop mat moves between the lands and valleys of the conditioner rolls, thereby increasing the ability of the conditioner rolls to crack and wear the stem away.

Higher conditioner roll tensions result in more aggressive crop conditioning because the rolls become more resistant to spreading apart as the crop is fed through.

Too large a roll gap or too little conditioner roll tension will under-condition the crop. resulting in extended dry down times and increased potential for weather-related damage.

Too close of a roll gap or too much conditioner roll tension can severely over-condition the crop. The over-conditioning of the crop breaks the crop tops away from the plants and causes excessive leaf loss.

Additionally, too close of a roll gap or too much conditioner roll tension will cause excessive wear of the conditioner rolls if the conditioner rolls contact each other during operation.

Torsion bar tensioning system

The torsion bar tensioning system maintains uniform pressure throughout the range of the conditioner roll movement as the crop mat passes between the conditioner rolls.,

The uniform conditioner roll pressure provides better control of the crop to reduce potential crop blockages.

For most crops and crop conditions, a good starting point for the application of torsion bar tension on intermeshing conditioner rolls is to increase the roll tension by turning the adjusting crank eight full turns after you start to feel resistance on the crank handle.

Properly conditioned crop

Features of properly conditioned crop:

- The conditioned crop shows a pattern of cracks at regular intervals along the plant stem.
- Each crack will be about **25 - 50 mm (1 - 2 in)** in length.
- The stem is flat in the cracked areas.
- Dependent on crop height when cut, at least two or three cracks are along the plant length.
- The plant leaves should show only minimal bruising.
 - The character of leaf bruises is the appearance of dark green streaks or marks across the leaf surface with the following results:
 - While some leaf bruising is unavoidable, too much leaf bruising is not good because the bruises allow moisture to escape the leaf.
 - When the leaf moisture can escape, the leaf dries too quickly, resulting in loss of the plant leaf before or during packaging.
 - Leaf loss reduces the overall feed value of the crop.

Conditioned crop – Check

WARNING

Risk of harm during maintenance of the machine!

Before all adjustment, lubrication, and maintenance ALWAYS:

- 1. Raise the machine. Engage the header lift lock channels.**
- 2. Disengage the Power Take-Off (PTO) drive.**
- 3. Shut off the tractor engine. Remove the key.**
- 4. Engage the tractor parking brake.**
- 5. Make sure that all moving parts have stopped.**

Failure to comply could result in death or serious injury.

W1451B

Check the condition crop as follows:

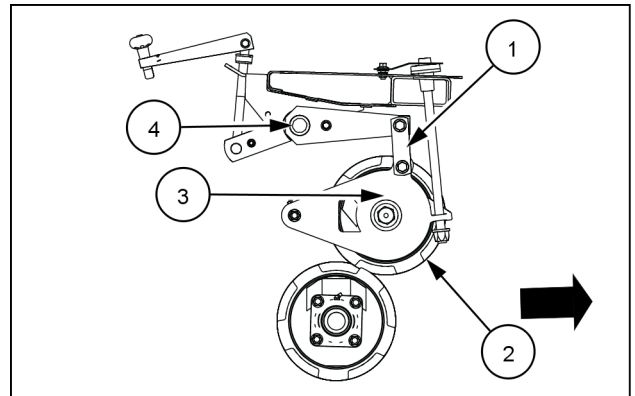
1. After fresh cut crop processes through the conditioner rolls, apply the above safety message rules.
2. Grab a handful of crop from the windrow directly behind the machine.
3. Examine the plant stems.
 - The plant stems should be fairly limp and just fold over your hand.
 - Nine out of 10 plant stems, in a random sample, should show stem cracks.
4. Inspect the leaves in the same random sample; no more than **5 %** of the leaves should have significant bruising.

Upper conditioner roll positions:

Upper conditioner roll – Home position at 0 °

The machine operation is idle prior to beginning to cut crop:

- The upper conditioner roll **(2)** is in the home position at 0 ° at the preset conditioning pressure.
- The link **(1)** is straight.
- The home position allows the application of full downward pressure of the torsion bar **(4)** onto the upper roll arm assembly **(3)**.

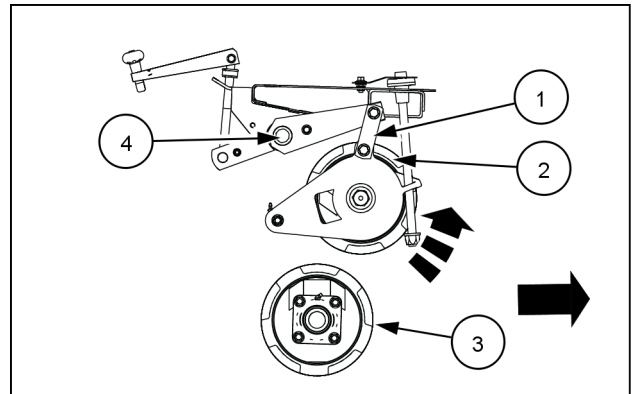


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Upper conditioner roll – Partially open at 15 °

The machine is cutting crop in the field:

- The upper conditioner roll **(1)** begins to move upward from the stationary roll **(3)** as the cut crop enters the conditioning system.
- The link **(2)** starts to move rearward while the torsion bar **(4)** maintains downward conditioning pressure.

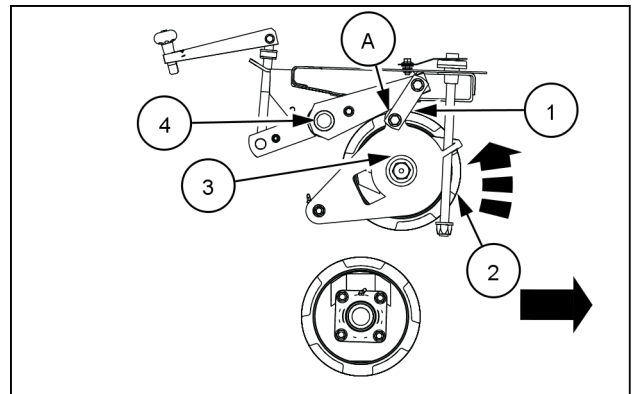


NHIL16HT00057AA 5

Conditioner roll – Fully open at 27.3 °

The machine encounters a crop blockage or foreign object:

- The upper conditioner roll **(2)** moves to fully open due to a crop blockage or a foreign object entering between the conditioner rolls.
- The link **(1)** no longer applies direct downward pressure to the roll arm assembly **(3)** from the torsion bar arm **(4)**.
- Downward conditioner pressure stops when the conditioner roll arm upward movement stops. The conditioner roll arm contacts the torsion bar arm at point **(A)** where the link lower end connects to the roll arm and stops the upward movement.
- The upper conditioner roll will return downward to home position and apply the preset conditioning pressure after the foreign object or crop blockage passes through the conditioner rolls.

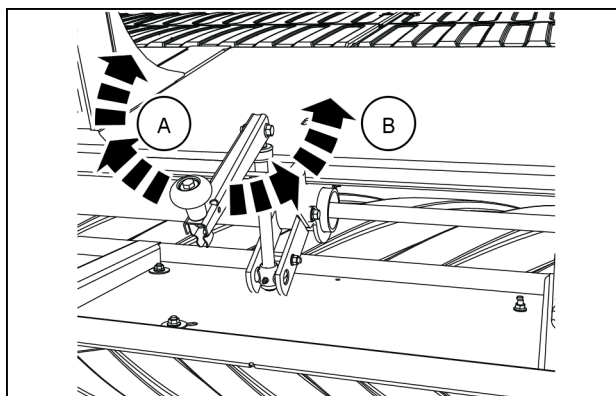


NHIL16HT00058AA 6

Roll pressure

Adjust the roll pressure with the adjustment crank handle (1).

1. Lift the adjustment crank handle from the storage position on the top shield.
2. **(A)** – Turn the crank handle clockwise to increase the roll pressure.
 - Apply only sufficient pressure to crack the stems, with minimal damage to the leaves.
 - Over-conditioning will result in leaves over-drying and shattering, increased power requirements, and increased drive line wear.
3. **(B)** – Turn the crank handle counterclockwise to decrease the roll pressure.
4. Return the crank handle to the storage position and make sure that you push the handle spring clip into the retainer notch in the top shield.



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Roll gap

NOTICE: Check and adjust the roll gap after you cut and condition the first **20 ha (50 ac)** of crop. Check and adjust the roll gap again after you cut and condition every additional **40 ha (100 ac)** of crop.

NOTE: In certain cane type crops like Sorghum, Sudex, and Sudan grass, an increase of the roll gap, may be necessary in order to feed the crop through the rolls and to prevent over-conditioning of the stalks.

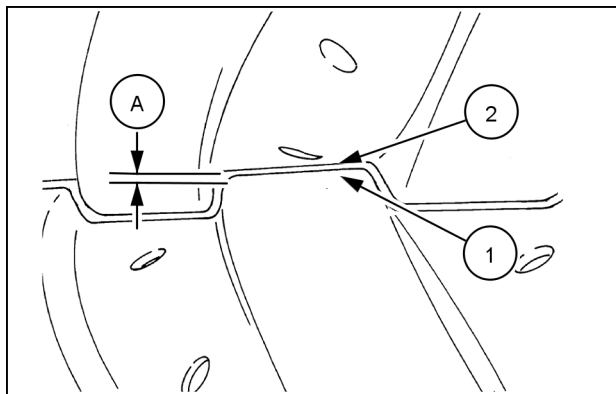
In Figure 1 and Figure 2 the roll gap is the space between intermeshing high surfaces (1) and low surfaces (2) of the conditioner rolls. The high surface on a conditioner roll is commonly referred to as the land, and the low surface is referred to as the valley.

- Operate the machine with the roll gap as close as possible for best performance.
- The conditioner rolls must never touch each other at any point in the rotation of the rolls.
- Always check the clearance with roll pressure applied.
- Always rotate the rolls for one complete revolution to determine the minimum clearance point.

Roll gap – Rubber conditioner rolls

The roll gap (A) specifications for best performance:

- **(A) = 0.4 - 3 mm (1/64 - 1/8 in)**

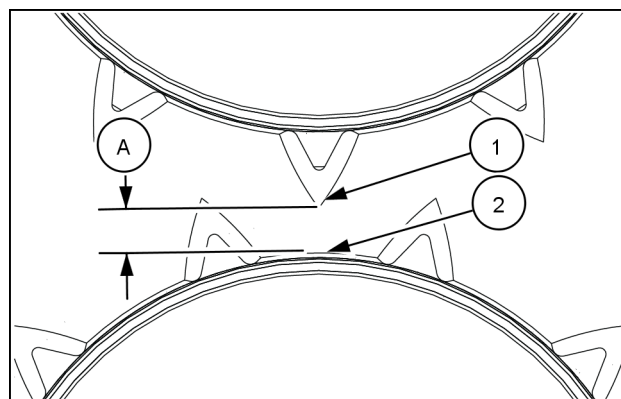


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Roll gap – Steel conditioner rolls

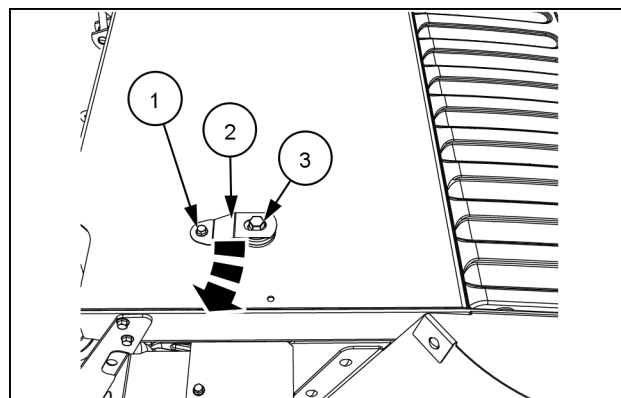
The roll gap (**A**) specifications for best performance:

- (**A**) = 5 - 7 mm (0.20 - 0.28 in)



Adjust the roll gap follows:

1. Loosen the bolt (**1**).
2. Disengage the lock plate (**2**) from the adjustment bolt (**3**), and then rotate the lock plate off of adjustment bolt.
3. In small increments, turn the adjustment bolt located on each end of the header.
 - The roll clearance will change approximately **2 mm (0.079 in)** per revolution of the bolt.
 - See “Roll conditioning” (**5-6**); “Roll gap” for additional roll gap adjustment information using crop material.
4. Measure the roll gap.
5. After you make the adjustment, engage the bolt lock plate (**2**), and then tighten the bolt.
6. Manually and slowly rotate the conditioner rolls to visibly make sure that there is no contact along the full width of the conditioner roll.



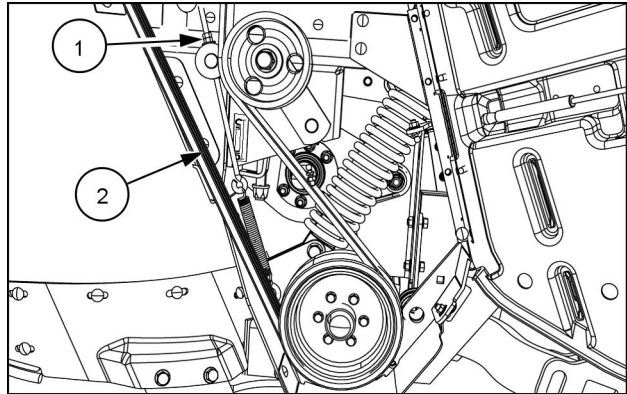
Roll speed

The roll conditioning units come standard from the factory with a roll speed of **750 RPM**.

A slower speed of **640 RPM** can help reduce crop blow-down in light crop conditions.

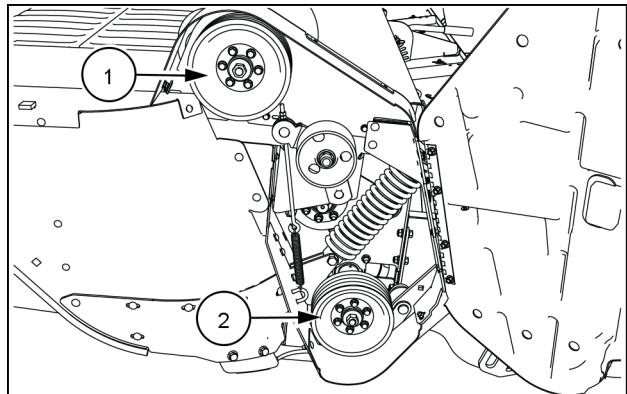
To reduce the roll speed, change the placement of the two drive belt sheaves. This action will result in a lower roll speed of **640 RPM**.

1. Open the left-hand shield to access the roll drive components.
2. Loosen the jam nut and the adjusting nut (1) on the eye bolt to relieve the tension on the conditioner drive belt (2).
3. Remove the drive belt.



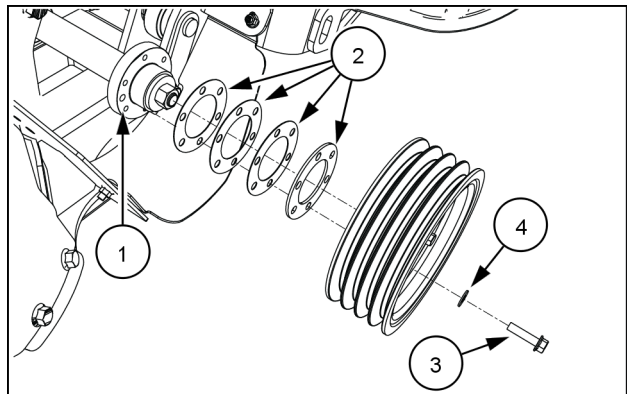
NHIL16HT00003FA 1

4. Remove the six bolts and washers from the upper sheave (1) and the lower sheave (2).
5. Remove the sheaves and the shims from each hub. Keep the shims with the same sheave, and relocate to the opposite shafts.



NHIL16HT00294AA 2

6. Install the upper sheave and the upper shims (2) on the lower hub (1).
7. Install the lower sheave and the lower shims on the upper hub.
8. Install the six bolts (3) and washers (4) on the upper sheave and the lower sheave.
9. Finger-tighten the six bolts and washers on each sheave.
10. Check to make sure that the sheaves are aligned to within **3 mm (0.12 in)**. If not, add or remove shims from either sheave to achieve this alignment specification.



NHIL16HT00295AA 3

11. Install the conditioner drive belt and adjust the tension spring to a length of **209 mm (8.25 in)** from inside hook to inside hook.

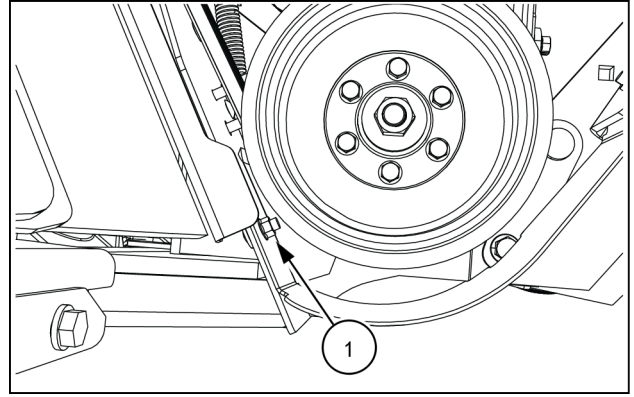
NOTE: For more information, see "Conditioner drive belt tension – Check" (6-30).

12. Make sure that the conditioner drive belt is centered on the idler to within **1.5 mm (0.06 in)** and that it is

not rubbing on the idler arm. Adjust the shims at the idler arm pivot, if required.

13. Torque the six bolts and washers on each sheave to **52 N·m (38 lb ft)**.

NOTE: For **4.9 m (16 ft)** machines, you must remove and install the carriage bolt (**1**) in the opposite orientation before you install the larger drive sheave on the lower hub. The head of the carriage bolt should point toward the sheave.



NHIL16HT00296AA 4

Clearing a crop blockage – Roll conditioner

⚠ WARNING

Unexpected movement!

Roll pressure could cause the top conditioner roll to move downward suddenly. Relieve roll pressure before you attempt to remove a blockage of crop material from the conditioner. Failure to comply could result in death or serious injury.

W0406B

⚠ DANGER

Crushing hazard! The header will fall rapidly if the hydraulic lift system fails.

ALWAYS engage the header lift lock channels when you work around a raised header. Failure to comply will result in death or serious injury.

D0189A

⚠ WARNING

Avoid injury!

Wear leather gloves when you work with sharp knives. Lock the cutterhead with a block of wood to keep it from rotating accidentally. Failure to comply could result in death or serious injury.

W1357A

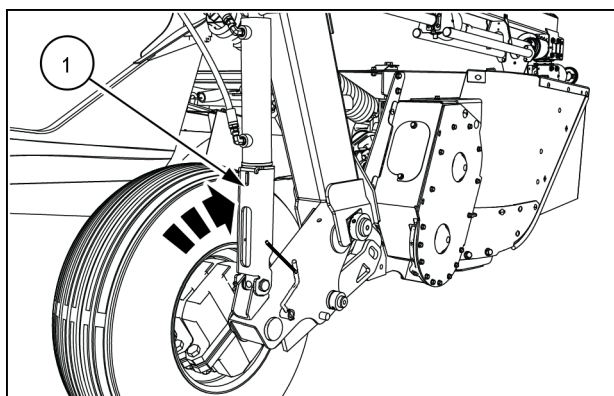
Machines with roll conditioners

If the conditioning rolls wrap with crop, the combination overrunning and friction slip clutch will protect the drive line.

NOTICE: The friction slip clutch will be damaged if you allow the friction slip clutch to continuously slip for more than a few seconds without stopping the machine and removing the crop blockage..

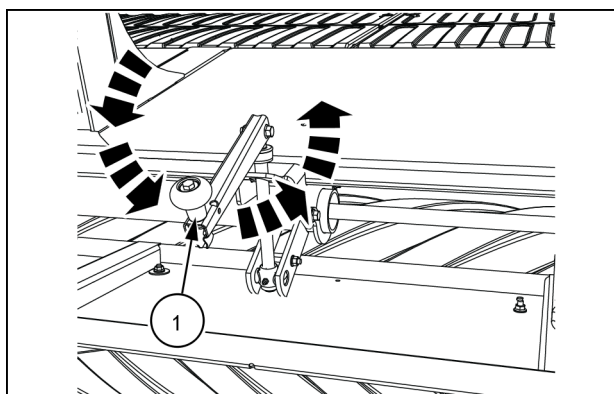
Remove a crop blockage as follows:

1. Stop the tractor and disengage the Power Take-Off (PTO).
2. Raise the header.
3. Back the tractor away from the uncut crop material.
4. Engage the header lift lock channels (1).
5. Shut off the tractor engine and engage the parking brake.
6. Clean the crop material off the cutterbar.



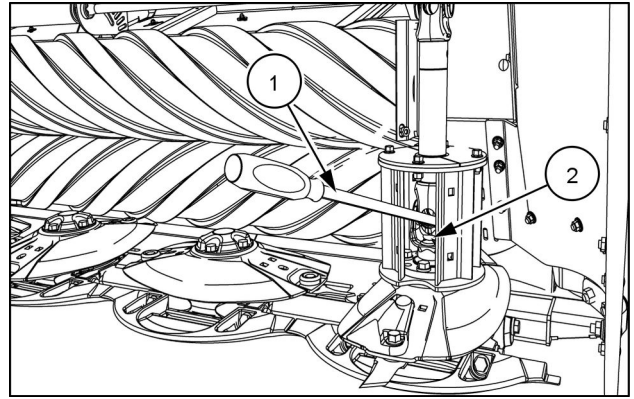
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5. Relieve roll pressure by turning the adjustment crank (1) counterclockwise, and pull as much crop material as possible from in front of and behind the conditioning rolls.



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6. Insert a bar **(1)** into the cutterbar drive tower **(2)** in order to rotate the conditioner rolls in the opposite direction.
7. Clear all of the crop material from in front of the rotor.
8. Make sure that there are no foreign objects in front of the cutterbar or the rotor.
9. Remove the bar from the cutterbar drive tower **(2)**.
10. Cut all of the crop material off of the conditioner rolls.
11. Start the tractor and, with the engine at half throttle, carefully engage the Power Take-Off (PTO). After the rolls clear, stop the machine and apply roll pressure.
12. Repeat this process until the conditioning rolls are clear.



NHIL13HT00406AA 3

If the flail rotor continues to become blocked with crop material, check the following items:

- Tractor speed – **14.5 km/h (9 mph)**
 - See “Field cutting” **(5-24)**.
- Condition of cutterbar knives
 - See “Cutterbar knives and hardware – Check” **(6-33)**.
- Conditioning roll pressure
 - See “Roll pressure” **(5-10)**.
- Roll gap
 - See “Roll gap” **(5-10)**.
- Conditioning roll belt tension
 - See “Conditioner drive belt tension – Check” **(6-30)**.
- Windrow settings – Swathgate and windrow shield adjustments
 - See “Windrowing” **(5-26)**.

FLAIL CONDITIONING

Flail conditioning

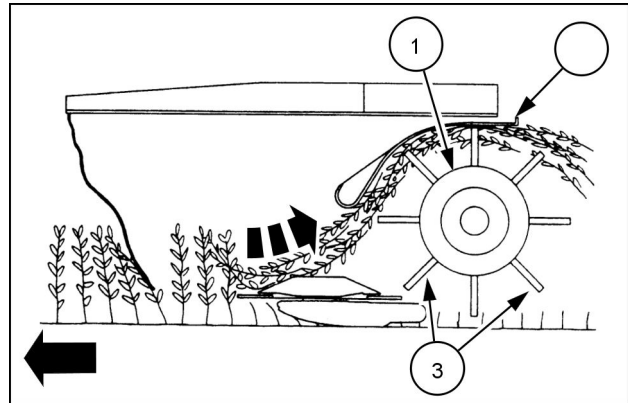
Units equipped with a flail conditioning system

The flail conditioning system consists of a single fixed-mounting rotor assembly (1) that carries free-swinging cast **LeaningEdge™** flails (3), and has an adjustable conditioning hood (2).

As the crop passes through the opening between the rotor and the hood, the action of the crop rubbing against the flails and hood combine to scuff the crop stems, stripping the waxy coating from the stem and allowing moisture to escape.

Conditioning level is determined by the amount of clearance between the flails and conditioning hood, flail rotor speed and the type of hood liner.

Move the hood closer to the flails to increase the conditioning. Move the hood away from the flails to decrease conditioning.



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Properly conditioned crop

Properly conditioned crop with a flail conditioner will exhibit signs of stripping on the plant stems as the waxy coating is stripped off during the conditioning process.

The flail conditioning system tends to damage leafy crops more than the roll conditioning, resulting in higher leaf losses.

Checking crop

As a general check, grab a handful of crop directly behind the machine after it has been processed and hold it in one hand.

The plant stems should be mainly stripped of their waxy coating.

If the plant stems exhibit signs of inadequate stripping or is shredded, adjust the speed of the flail rotor or the clearance between the flails and conditioning hood.

Flail conditioner hood – Adjust

⚠ DANGER

Entanglement hazard!

Disengage the Power Take-Off (PTO), turn off the engine, and remove the key. Wait for all movement to stop before you leave the operator's position. Never adjust, lubricate, clean, or remove a blockage of crop material when the engine is on.

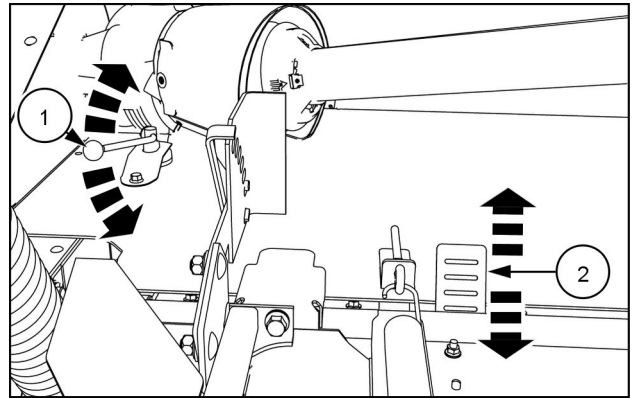
Failure to comply will result in death or serious injury.

D0097B

A hood above the flail conditioner controls, conditions, and directs the crop toward the rear of the unit.

In light crop conditions, you can adjust the hood closer to the flail conditioner to make sure that the flails are making contact with the crop stems.

- You control the flail conditioner hood position with a single crank **(1)** locate at the left-hand side of the header.
- A crop conditioning gauge **(2)** on the hood indicates the relative position of the hood.
- Turn the crank counter-clockwise to lower the hood.
 - Maximum crop conditioning occurs, when you lower the hood to the lowest position.
- Turn the crank clockwise to raise the hood for minimum crop conditioning.



NHIL13HT00502AA 1

Clearing a crop blockage – Flail conditioner

⚠ DANGER

Crushing hazard! The header will fall rapidly if the hydraulic lift system fails.
ALWAYS engage the header lift lock channels when you work around a raised header.
Failure to comply will result in death or serious injury.

D0189A

⚠ WARNING

Avoid injury!
Wear leather gloves when you work with sharp knives. Lock the cutterhead with a block of wood to keep it from rotating accidentally.
Failure to comply could result in death or serious injury.

W1357A

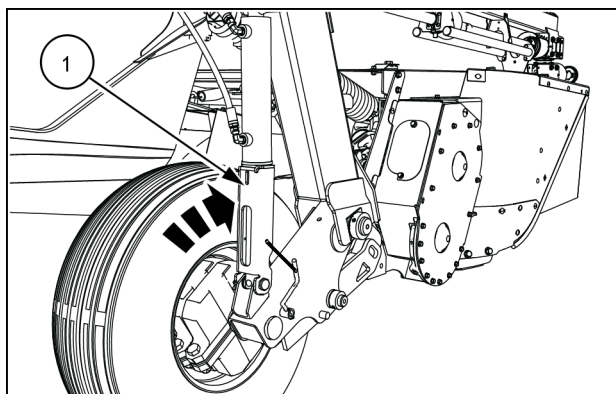
Machines with flail conditioners

If the the flail rotor wraps with crop, the combination overrunning and friction slip clutch slip function will protect the drive line.

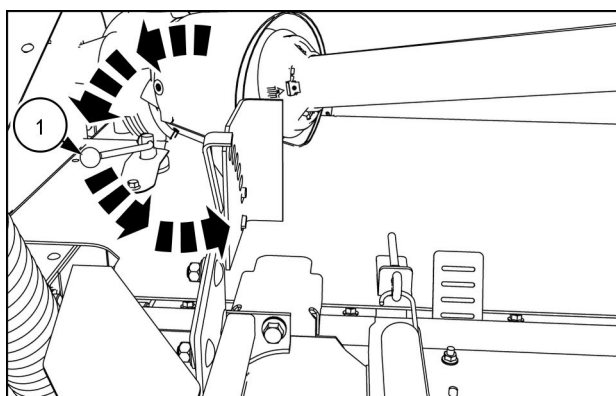
NOTICE: *The friction slip clutch will be damaged if you allow the friction slip clutch to continuously slip for more than a few seconds without stopping the machine and removing the crop blockage..*

Remove a crop blockage as follows:

1. Stop the forward movement of the tractor and shut off the Power Take-Off (PTO).
2. Raise the header.
3. Back the tractor away from the uncut crop material.
4. Engage the header lift lock channels **(1)**.
5. Shut off the tractor engine and engage the parking brake.
6. Clean the crop material off of the cutterbar.
7. Turn the hand crank **(1)** counterclockwise to raise the conditioning hood.

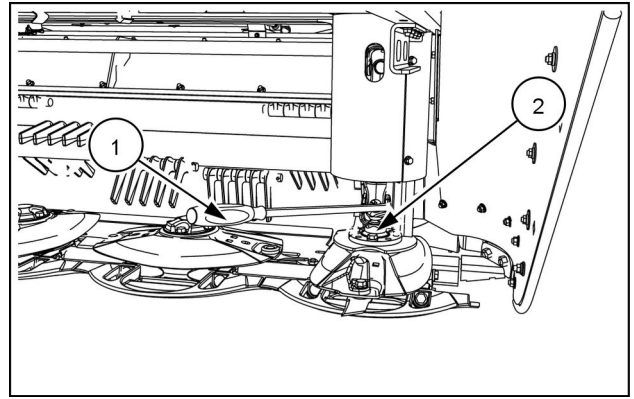


NHIL16HT00024AA 1



NHIL13HT000502AA 2

8. Insert a bar **(1)** into the cutterbar drive tower **(2)** in order to rotate the conditioner rolls in the opposite direction.
9. Clear all of the crop material from in front of the flail rotor.
10. Make sure that there are no foreign objects in front of the cutterbar or the rotor.
11. Remove the bar from the cutterbar drive tower **(2)**.
12. Cut all of the crop material off of the flail rotor.
13. Start the tractor and carefully engage the PTO with the tractor throttle at one-third.
14. After the rotor turns freely, disengage the PTO, turn the tractor engine off, and engage the parking brake.
15. Adjust the conditioning hood to the prior setting.



NHIL13HT00526AA 3

If the flail conditioner continues to become blocked with crop material, check the following items:

- Tractor speed – **14.5 km/h (9 mph)**
 - See “Field cutting” **(5-24)**.
- Condition of cutterbar knives
 - See “Cutterbar knives and hardware – Check” **(6-33)**.
- Conditioning roll belt tension
 - See “Conditioner drive belt tension” **(6-30)**.
- Windrow settings – Swathgate and windrow shield adjustments
 - See “Windrowing” **(5-26)**.

FIELD OPERATION

Header flotation

⚠ DANGER

Crushing hazard! The header will fall rapidly if the hydraulic lift system fails. ALWAYS engage the header lift lock channels when you work around a raised header. Failure to comply will result in death or serious injury.

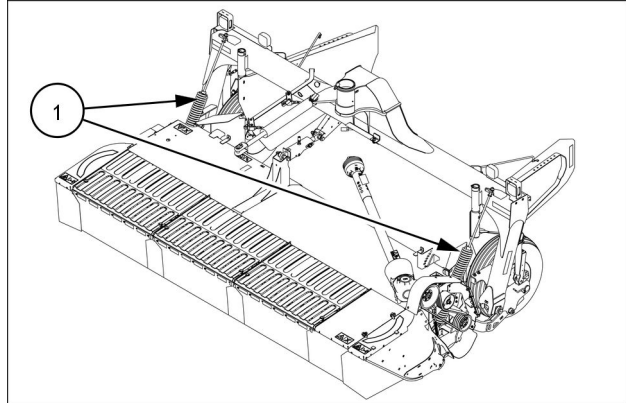
D0189A

Header flotation – Overview

The flotation springs (1) at each end of the header control the header flotation.

Header operation with incorrect header flotation settings can result in the following:

- Header side-drift and excessive component wear, if the header flotation weight is too heavy
- Long or irregular crop stubble height, if the header flotation weight is too light



NHIL13HT00485AA 1

Follow the guidelines below to check and adjust the header flotation:

- Check and adjust the cutterbar flotation when you use the machine on a tractor with a different drawbar height, or when you install or remove the high stubble kit or the cane and biomass harvesting kit.
- Check the header flotation frequently, because crop and dirt buildup can cause the flotation force to change.
- Check the header flotation with the header set in the field operating position after performing the following actions:
 - Center the tongue and the header behind the tractor
 - Fully lower the header to the ground
 - Tilt the header to the desired cutting height that you operate at in the field.

NOTE: If you change the header tilt during operation, you will affect the header flotation. Check the header flotation if you change the header tilt.

- The flotation adjustment must allow the header cutterbar to maintain contact with the ground.

Header flotation specification

- For smooth field operation at standard ground speeds of **11 - 14 km/h (7 - 9 mph)**, set the header flotation weight to **59 - 68 kg (130 - 150 lb)** weight on both ends of the header to prevent excessive header bounce.
- For rocky field operation at lower ground speeds of **8 - 11 km/h (5 - 7 mph)**, set the header flotation weight to **45 - 54 kg (99 - 119 lb)**.

Header flotation – Check

NOTE: You will require a spring scale with a minimum capacity of **68 kg (150 lb)**.

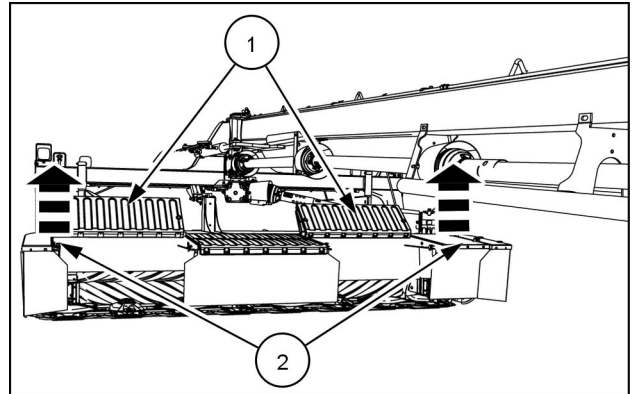
1. Position the tongue and header centered behind the tractor, with the header fully lowered to the ground, and the header tilted for the desired cutting height.

NOTE: Figure 2 depicts a machine with a roll conditioner. The process is the same for a machine with a flail conditioner.

2. Raise the cutterbar access shields (1).

NOTE: On a **4.9 m (16 ft)** machine, you must additionally fold open the left-hand outer end access shield to access the outermost end support to lift on in Step 3.

3. Attach a spring scale onto one of the header end supports (2).
4. Lift upward on the scale, and then note the weight the scale indicate when the header begins to rise upward.
5. On the opposite end of the machine, repeat the weight measurement.



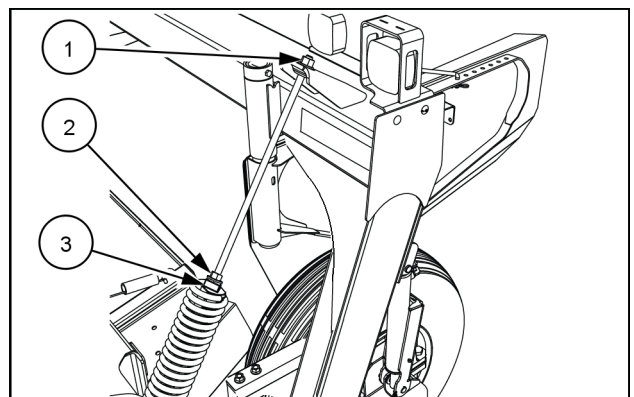
NHIL13HT00407AA 2

1. The header flotation weight should be within the specifications below, based on operating condition. If adjustment is required, see the section titled “Header flotation – Adjust”.
 - For smooth field operation at standard ground speeds of **11 - 14 km/h (7 - 9 mph)**, set the header flotation weight to **59 - 68 kg (130 - 150 lb)** weight on both ends of the header to prevent excessive header bounce.
 - For rocky field operation at lower ground speeds of **8 - 11 km/h (5 - 7 mph)**, set the header flotation weight to **45 - 54 kg (99 - 119 lb)**.

Header flotation – Adjust

NOTICE: Do not exceed **68 kg (150 lb)** of flotation weight. Exceeding the flotation weight specification may result in damage to the header.

1. Loosen the jam nut (2) on the adjusting bolt (1) on each side of the machine.
2. Turn the adjusting bolts an equal amount of turns to increase or decrease the flotation weight to the desired setting.
3. Perform the steps described in “Header flotation – Check.”
4. When you achieve the desired header flotation, securely tighten the jam nut against the cast spring nut (3).



NHIL16HT00031AA 3

Cutting height

⚠ DANGER

Crushing hazard!

Safety locks built into the header lift system lock the header in the raised position. Engage the safety locks on both sides before working under a raised header. Failure to comply will result in death or serious injury.

D0029A

⚠ WARNING

Moving parts!

Disengage the Power Take-Off (PTO), turn off the engine, and remove the key. Wait for all movement to stop before you leave the operator's position. Never adjust, lubricate, clean, or remove a blockage of crop material when the engine is on.

Failure to comply could result in death or serious injury.

W0112B

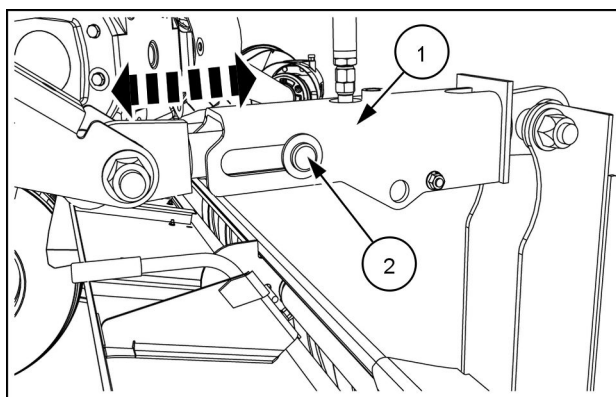
To change the cutting height, you must change the header angle with the hydraulic tilt cylinder.

The tilt cylinder operates in conjunction with the lift cylinders.

- When you operate the tractor hydraulic remote, the tilt cylinder retracts and causes the header to tilt back while the lift cylinders raise the unit.
- When you lower the unit, the tilt cylinder will extend after the lift cylinders fully retract.

Position the tilt-limiter pin (2) into the tilt cylinder assembly (1) to limit the header tilt to one of three positions.

- Minimum tilt position
- Middle tilt position
- Maximum tilt position



NHVM13HT00587AA 1

Header tilt and cut height can vary depending on the height of the hitch, manufacturing tolerances, the type of knife, and the deflection of the tires.

- Minimum tilt position – Average cut height **80.5 mm (3.17 in)** – **68.30 - 92.70 mm (2.69 - 3.65 in)**
- Middle tilt position – Average cut height **55.30 mm (2.18 in)** – **44.20 - 66.50 mm (1.74 - 2.62 in)**
- Maximum tilt position – Average cut height **30.20 mm (1.19 in)** – **20.10 - 40.10 mm (0.79 - 1.58 in)**

You can position the tilt-limiter pin (2) with the header in the “raised” position and the tilt cylinder in the fully “retracted” position.

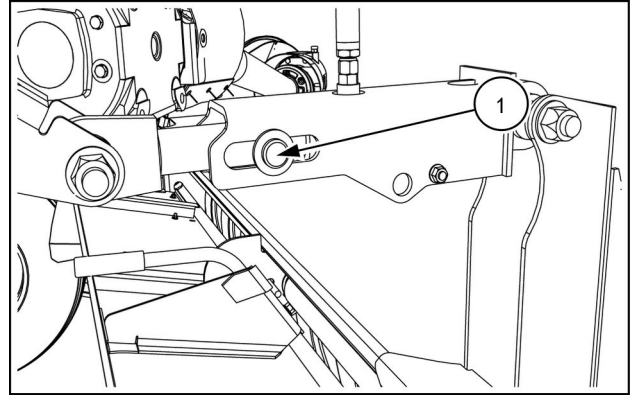
Make sure that you install the retaining clip.

For minimum header tilt, insert the tilt-limiter pin through the plate slots and the rear rod hole.

- This position locks up the tilt cylinder, which prevents the header from tilting.

For the header middle tilt position, insert the tilt-limiter pin through the plate slots and the front rod hole (1).

- This position allows the tilt cylinder to extend the length of the slot in the channel, so the header tilts forward to a mid-position.



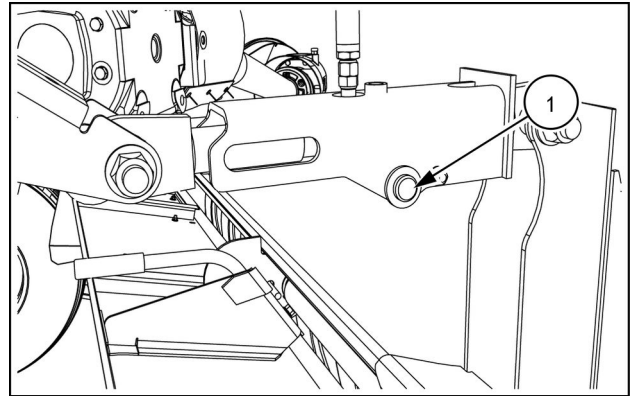
NHVM13HT00588AA 2

For maximum header tilt, store the tilt-limiter pin in the lower plate holes (1).

- This position does not restrict the tilt cylinder stroke, and allows the header to tilt forward to the lowest cutting height.

If a stone or obstacle is seen when the machine is in the middle tilt position or the maximum tilt position, you can retract the header angle to the minimum tilt position without lifting the header.

- Just move the tractor valve to the raise position long enough to retract the tilt cylinder.
- After you pass the obstacle, move the tractor hydraulic remote to the float position to extend the cylinder.



NHVM13HT00589AA 3

Opening fields

⚠ WARNING

**Flying objects! Machines with rotary discs can fling foreign objects toward the operator.
Keep all skirts and shields in place.
Failure to comply could result in death or serious injury.**

W0024A

You can open the field with the centerpivot disc mower-conditioner in the same manner as with other pivot tongue units.

1. Cut the first swath with the header on either side of the tractor.
2. Cut the back swath in the opposite direction in order to pick up more of the crop that was run down by the tractor tires.
3. Reduce ground speed when you cut cutting the back swath to pick up most of the crop.
4. Run the side of the header close to the edge of the standing crop for maximum cutting efficiency.

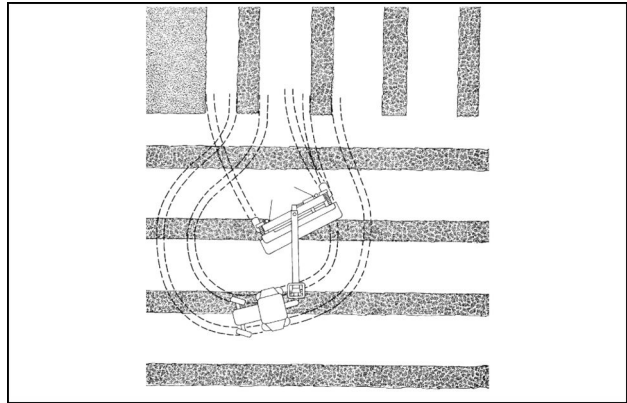
NOTE: *If less than a full cut is taken, it is normal to see recut short material blown forward under the skirting alongside the standing crop.*

Field cutting

Cut the field back-and-forth as follows:

1. Cut three to four swaths around the field to open the field.
2. Cut back-and-forth on one side of the field.
3. Raise the header after each swath and shift the header to the other side of the tractor while you turn in order to position the tongue away from the inside tractor tire for a sharper turning radius.

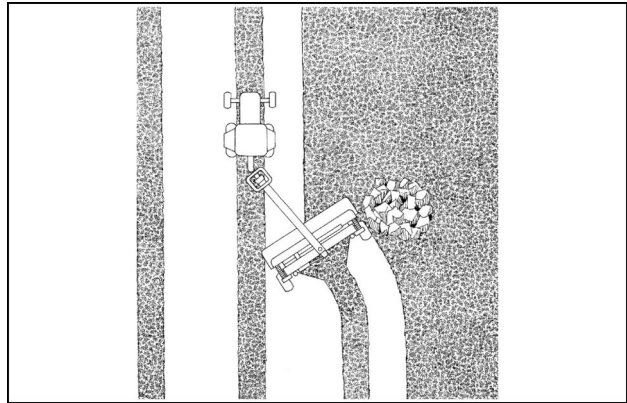
NOTE: With practice, the header can be shifted to the opposite side of the tractor in steps, during the turn, to make a short-radius turn without missing any standing crop.



20106232N 1

Maneuver around obstacles in the field as follows:

1. Swing the header towards the tractor and away from the obstacle as the unit approaches the obstacle. Make sure that you allow enough time for the machine to pivot and track away from the obstacle.
2. Straighten out the unit while you pass the obstacle to avoid running the header more than necessary into the previously cut crop.
3. Once past the obstacle, swing the header fully back into the standing crop.
4. On the next pass, steer the tractor around the obstacle.

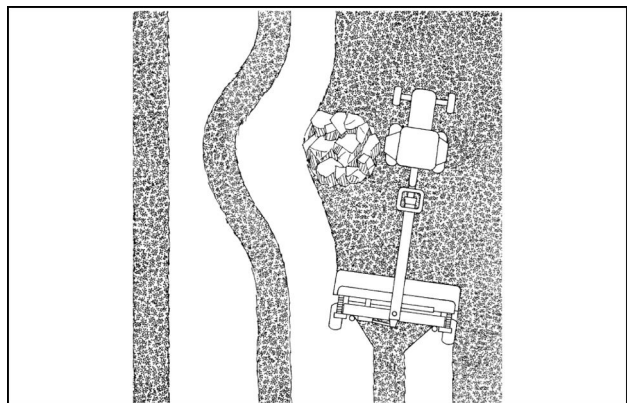


20106233N 2

5. Swing the header towards the tractor so that it follows the cut line as long as possible.
6. Center the unit behind the tractor as you pass the obstacle.
7. As the tractor exits the uncut crop, gradually steer the header away from the tractor to keep it in the standing crop.

Cut over-square corners as follows:

1. As you approach a sharply-angled corner, gradually swing the header towards the tractor to keep the unit positioned between the previously cut windrows.
2. As the header comes out of the standing crop, raise the header and turn the tractor to the right.
3. Continue to swing the unit towards the left to move the tongue away from the tractor tire for a sharper turning radius.
4. As you near the end of the turn, swing the header away from the tractor so that it aligns with the standing crop, and is in the center of the previously cut windrows.



20106234N 3

5. Lower the header into the crop, and gradually swing the header fully into the standing crop.

NOTE: Maintain full Power Take-Off (PTO) speed when you cross previously cut windrows, even if the header is fully raised. Failure to do so may cause crop blockage in the cutterbar or conditioner rolls.

The ground speed capabilities are variable, depending on field terrain and crop conditions. Generally, up to **14.5 km/h (9 mph)** yields good results. Slower speeds may be necessary depending on crop conditions, tractor horsepower, and terrain. In light, easy to cut crops and smooth fields, higher speeds are possible.

NOTICE: *Adjust the tractor ground speed by changing gears. Do not adjust ground speeds by moving the tractor throttle from the proper PTO speed. Do not overspeed the PTO or driveline damage may occur.*

NOTICE: *If the machine vibrates, STOP OPERATION IMMEDIATELY. Determine and correct the cause of the vibration before continuing operation. FAILURE TO DO THIS WILL CAUSE SERIOUS DAMAGE TO THE UNIT.*

⚠ WARNING

Flying objects! Machines with rotary discs can fling foreign objects toward the operator.
Keep all skirts and shields in place.
Failure to comply could result in death or serious injury.

W0024A

⚠ WARNING

Moving parts!
Shut off the tractor and allow the rotating discs to stop moving before leaving the machine or attempting to remove material from the disc mower.
Failure to comply could result in death or serious injury.

W0405A

The disc mower-conditioner is intended for use in difficult cutting conditions. The knife speed is approximately **261 km/h (162 mph)** and relies on plant stem integrity and strength to cut. The cutterbar operates on an impact cutting principle.

Turbulence from the cutterbar could cause crop blowdown in light or thin crops, and may result in uncut strips or streaks. Try to cut a shorter stubble to reduce streaking. Do not tilt the cutterbar for a shorter stubble in stony fields.

NOTICE: *Take extra precautions to prevent accumulation of baler twine or wire in fields to be cut. Twine and wire may wrap beneath the discs and overheat the disc bearings and/or damage shaft seals causing oil loss and possible module failure.*

NOTICE: *Tilt the cutterbar back in fields where stones and foreign objects are present, to raise the cutting knives and minimize debris deflected from the knives and reduce knife damage.*

The cutterbar may become blocked with dirt and debris between the stone guards when operating in newly planted fields with soft loose soil. This blockage may cause streaking to occur.

Reduce cutterbar blockages in newly planted fields as follows:

- Tilt the cutter bar back to minimum tilt position (horizontal).
- Reduce the header flotation weight.
- Clean the cutterbar off frequently to avoid unnecessary knife and disc wear.
- In severe conditions, install the high stubble kit to increase the cutting height.

When cutting in bedded or corrugated hay fields, position the unit so the tires are on top of the field, and not in the corrugations, to prevent cutterbar blockage and lack of header flotation.

- Tilt the cutterbar back to minimum tilt position (horizontal) to prevent bulldozing.

Windrowing

To create the desired windrow width and height for different volume crops, you must adjust both the swathgate and the windrow shields.

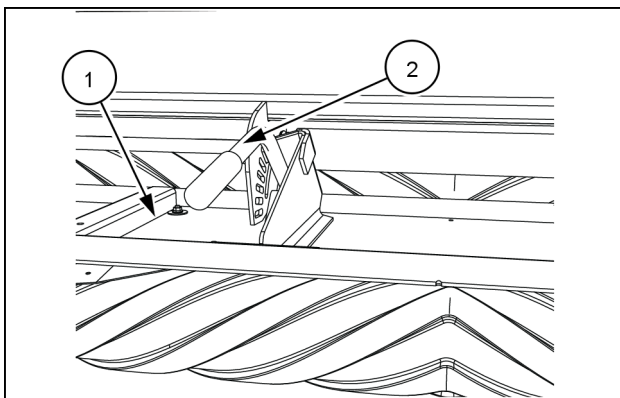
Swathgate – Adjust

NOTE: To make the most uniform windrow, leave the swathgate in the mid-position setting and adjust the windrow shields to set the windrow width.

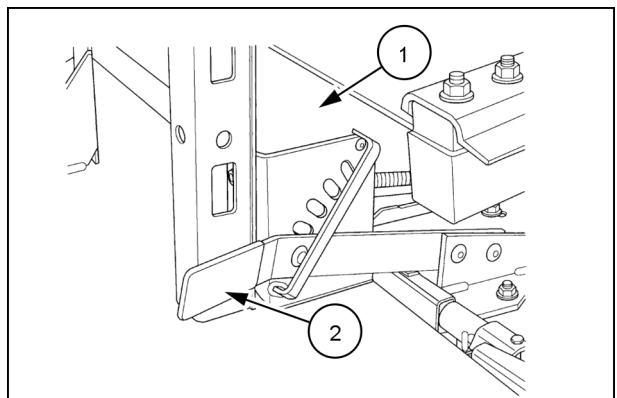
NOTE: Roll conditioner – To avoid a conditioner roll blockage in heavy high-volume crops, position the swathgate as high as possible to minimize restriction of the crop flow from the conditioner rolls.

To adjust the swathgate:

1. Raise the swathgate **(1)** to allow the conditioned crop to flow rearward and into the windrow shields.
2. Move the handle **(2)** to the desired setting.



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19985215N 2

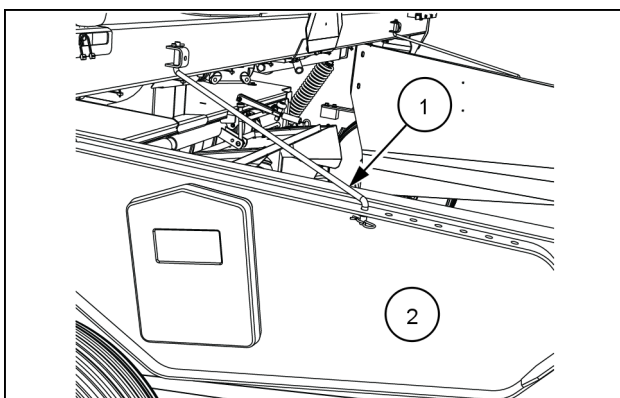
Roll conditioner

Flail conditioner

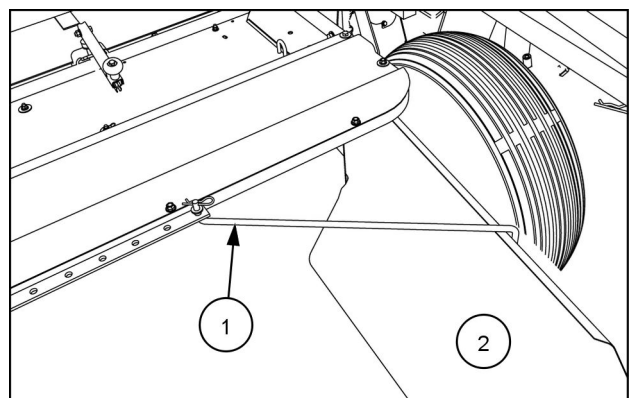
Windrow shields – Adjust

To adjust the windrow shields:

Move the windrow shield adjustment rods **(1)** to set the desired width of the windrow shields **(2)**.



NHIL13HT00398AA 3



NHIL13HT00501AA 4

Roll conditioner

Flail conditioner

6 - MAINTENANCE

GENERAL INFORMATION

Lubrication

⚠ WARNING

Avoid injury!

1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Wait for all machine movement to stop.

Failure to comply could result in death or serious injury.

W1197A

⚠ WARNING

Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

W0178A

⚠ WARNING

Illustrations in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.

Replace all shields before operating the machine.

Failure to comply could result in death or serious injury.

W0012A

NOTICE: Always use genuine NEW HOLLAND replacement parts, oils, and filters to ensure proper operation and filtration of engine and hydraulic systems. See your NEW HOLLAND dealer for additional oil quantities.

NOTICE: While any company can perform necessary maintenance or repairs on your equipment, NEW HOLLAND strongly recommends that you use only authorized NEW HOLLAND dealers and products that meet given specifications. Improperly or incorrectly performed maintenance and repair voids the equipment warranty and may affect service intervals.

Adequate lubrication and maintenance on a regular schedule is vital to maintaining your equipment. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this manual. The use of proper fuels, oils, grease, and filters, as well as keeping the systems clean, will also extend machine and component life.

General information

Regular lubrication is the best insurance against delays and repairs. Proper lubrication will extend the life of the machine.

NOTICE: Failure to complete the required maintenance at the recommended intervals can cause unnecessary downtime.

Use the intervals listed in the maintenance chart as guidelines when you operate in normal conditions. Adjust the intervals when you operate in adverse environmental and working conditions. Shorten the intervals for sandy, dusty, and extremely hot operating conditions.

Always clean the area around the gearbox dipsticks, the fill caps, and the check plugs when you check fluid levels. Failure to clean these areas may allow contamination to enter the system. Drain, flush, and refill the system whenever you suspect it is contaminated.

NOTE: Check the machine daily for oil leaks. Fix any leak immediately.

Grease fittings

On new machines, the grease fitting may be covered with paint. Remove the paint to make sure that grease can enter the fitting.

Wipe the dirt from all of the fittings and from the grease gun nozzle before you grease the machine to minimize the chances of contamination.

Pump fresh grease into the fitting to adequately lubricate the component and force out any contamination from the grease passage. Wipe off any excess grease.

Use a grease gun that contains new and clean **NEW HOLLAND AMBRA HI TEMP EP GREASE** or an equivalent lubricant.

The "Maintenance chart" **6-13**) identifies all of the grease fittings on this machine. Refer to the individual service intervals to identify each grease fitting.

Not all grease fittings are readily visible. Various grease gun decals identify grease fittings that are present in locations that may be covered, between components, or on the underside of a component.

Grease guns

Different types of grease guns provide a different amount of grease per pump of the handle.

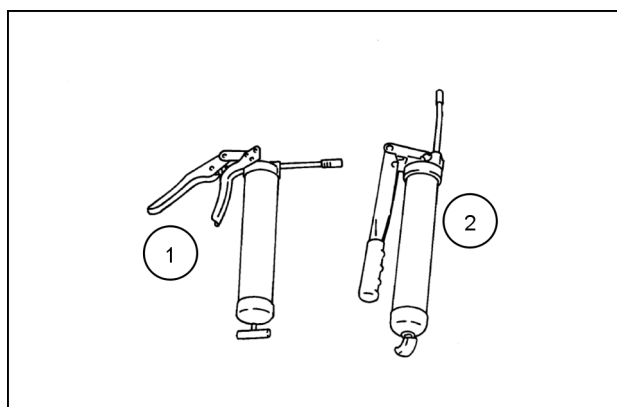
Two commonly used grease gun types:

- (1) – Pistol grip-style grease gun
- (2) – Lever-style grease gun

In general, a pistol grip-style grease gun injects half of the amount of grease per pump as a lever-style grease gun.

For listed components to grease on this machine, the number of pumps of grease for each grease location are based on the use of a pistol grip-style grease gun **(1)**.

- If you use a lever-style grease gun, use only half of the indicated number of pumps of grease.



1431-2-58N 1

Gearboxes

NOTE: Clean the area around all plugs and grease fittings before you lubricate the machine. Always check the gearbox oil levels with the cutterbar level both from front-to-back and side-to-side.

Use the indicated consumable to maintain the oil level in the gearboxes. Oil for the gearboxes and for the cutterbar modules is available from your NEW HOLLAND dealer.

NOTICE: Failure to use the correct specification of oil may lead to premature failure of the gearbox components.

NOTICE: You must change the oil in all of the gearboxes after the first 50 hours of use to remove any contaminants from the break-in process.

Consumables – Fluids and lubricants

Consumable product	Material specification	Use	Capacity
Grease lubricant			
NEW HOLLAND AMBRA HI TEMP EP GREASE	CNH Industrial: MAT3550 Performance: NLGI 2 , GC-LB	All grease fittings	As specified.
		Wheel bearings – Repack	Not specified; amount as required
Lubricating oils			
TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90 or CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90 (synthetic)	CNH Industrial: MAT3511 Performance: API GL-5, SAE J2360, MIL-PRF-2105E	Front lower-half swivel hitch gearbox	2000 mL (68 US fl oz)
		Front upper-half swivel hitch gearbox	1100 mL (37 US fl oz)
		Rear lower-half reversing swivel gearbox	2000 mL (68 US fl oz)
		Rear upper-half reversing swivel gearbox	1100 mL (37 US fl oz)
		Conditioner drive gearbox	800 mL (27 US fl oz)
		Bevel gearbox	710 mL (24 US fl oz)
		Cutterbar modules	340 mL (11 US fl oz) each

Torque specifications – Nominal tightening torque values for normal assembly

NOTE: In the metric tables, nominal sizes M4 through M8 hardware torque specifications are shown as a Newton meters (pound-inches) numerical value.

Nominal sizes M10 through M24 hardware torque specifications are shown as a Newton meters (pound-feet) numerical value.

Metric hex head (non-flange) hardware

Plain (PLN) – an unplated hardware finish with residual manufacturing oils

Zinc-dichromate (ZND) – a yellow colored chemical plating formula yellow applied to the hardware

Nominal size	Class (CL) 8.8 bolt and Class (CL) 8 nut	Class (CL) 10.9 bolt and Class (CL) 10 nut	Locknut CL 8 w/CL 8.8 bolt	Locknut CL 10 w/CL 10.9 bolt
	PLN and ZND	PLN and ZND	ZND	ZND
	N·m (lb in)	N·m (lb in)	N·m (lb in)	N·m (lb in)
M4	3.5 (31)	5.0 (44)	1.4 (13)	2.8 (25)
M5	7.0 (62)	10 (88)	2.9 (26)	5.5 (49)
M6	11.8 (104)	17 (150)	4.9 (43)	9.4 (83)
M8	28.8 (255)	41.3 (366)	11.9 (105)	23 (204)
	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)
M10	57 (42)	82 (60)	24 (17)	45 (33)
M12	100 (74)	143 (105)	41 (30)	79 (38)
M14	159 (117)	227 (168)	66 (48)	125 (92)
M16	248 (183)	354 (261)	102 (75)	195 (144)
M18	352 (260)	487 (359)	145 (107)	268 (198)
M20	500 (369)	690 (509)	206 (152)	380 (280)
M24	865 (638)	1195 (882)	357 (263)	657 (485)

Metric flange head hardware

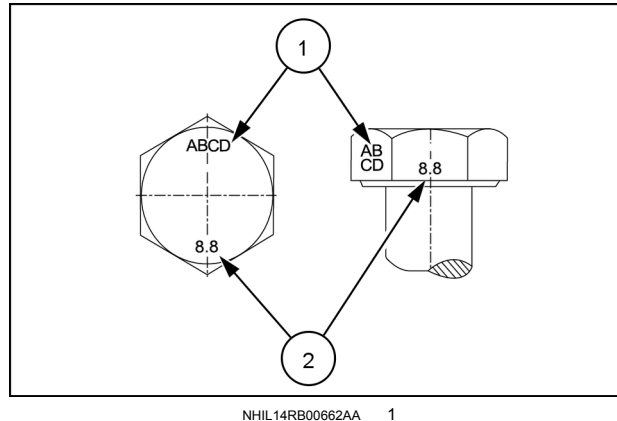
Plain (PLN) – an unplated hardware finish with residual manufacturing oils

Zinc-dichromate (ZND) – a yellow colored chemical plating formula yellow applied to the hardware

Nominal size	Class (CL) 8.8 bolt and Class (CL) 8 nut	Class (CL) 10.9 bolt and Class (CL) 10 nut	Flange locknut CL 8 w/CL 8.8 bolt	Flange locknut CL 10 w/CL 10.9 bolt
	PLN and ZND	PLN and ZND	ZND	ZND
	N·m (lb in)	N·m (lb in)	N·m (lb in)	N·m (lb in)
M4	3.8 (34)	5.5 (49)	4.2 (37)	6.1 (54)
M5	7.7 (68)	11 (97)	8.5 (75)	12 (106)
M6	13 (115)	18.7 (166)	14.3 (127)	20.6 (182)
M8	31.7 (281)	45.5 (403)	35 (310)	50 (443)
	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)
M10	63 (47)	90 (66)	69 (51)	99 (73)
M12	110 (81)	157 (116)	121 (89)	173 (128)
M14	175 (129)	250 (184)	193 (142)	275 (202)
M16	272 (201)	389 (287)	299 (221)	428 (316)
M18	387 (286)	535 (395)	426 (315)	589 (435)
M20	550 (406)	759 (560)	605 (447)	835 (616)
M24	951 (702)	1315 (970)	1046 (772)	1447 (1067)

Identification markings

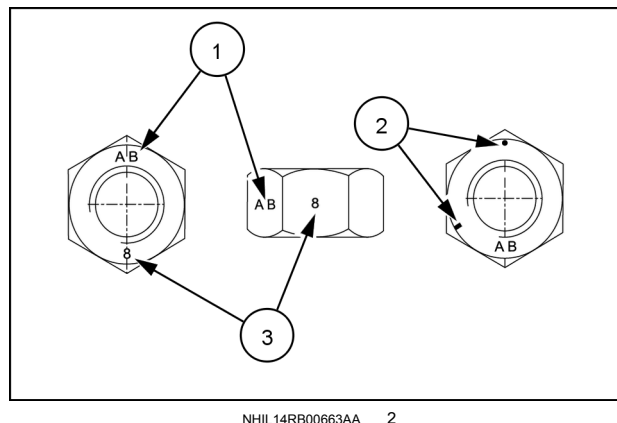
Metric hex head, flange hex head and carriage bolts, Classes (CL) 5.6 and upward



Metric bolt identification markings

1. Manufacturer's identification
2. Property class

Metric hex nuts and locknuts, Classes (CL) 05 and upward



Metric hex nut identification markings

- (1) – Manufacturer's identification
- (3) – Property class
- (2) – Clockwise type markings indicate property class and may include manufacturer identification (if applied), Example: property marks **240°** apart (shown) at the eight o'clock position indicate a Class 8 property, and marks **300°** apart at the ten o'clock position indicate a Class 10 property.

NOTE: In the Imperial units tables, the nominal sizes, **1/4 (0.25) in (inch)** and **5/16 (0.3125) in (inch)** hardware torque specifications are shown as a Newton meters (pound-inches) numerical value.

Nominal sizes **3/8 (0.375) in (inch)** through **1 (1.0) in (inch)** hardware torque specifications are shown as a Newton meters (pound-feet) numerical value.

Inch hex head (non-flange) hardware

Plain (PLN) – an unplated hardware finish with residual manufacturing oils

Zinc-dichromate (ZND) – a yellow colored chemical plating formula yellow applied to the hardware

Nominal size	SAE Grade (GR) 5 bolt and nut	SAE Grade (GR) 8 bolt and nut	Locknut GR B w/ GR 5 bolt	Locknut GR C w/ GR 8 bolt
	PLN and ZND	PLN and ZND	ZND	ZND
	N·m (lb in)	N·m (lb in)	N·m (lb in)	N·m (lb in)
1/4 (0.25) in	13 (115)	18 (159)	7.2 (64)	10 (89)
5/16 (0.3125) in	27 (239)	38 (336)	14.9 (132)	21 (186)
	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)
3/8 (0.375) in	47 (35)	67 (49)	26 (19)	37 (27)
7/16 (0.4375) in	76 (56)	107 (79)	42 (31)	59 (44)
1/2 (0.50) in	116 (85)	164 (121)	64 (47)	90 (67)
9/16 (0.5625) in	167 (123)	236 (174)	92 (68)	130 (96)
5/8 (0.625) in	231 (170)	326 (240)	127 (94)	179 (132)
3/4 (0.75) in	410 (302)	578 (426)	226 (166)	318 (234)
7/8 (0.875) in	660 (486)	931 (687)	363 (267)	512 (378)
1 (1.0) in	989 (729)	1396 (1030)	544 (401)	768 (567)

Inch flange head hardware

Plain (PLN) – an unplated hardware finish with residual manufacturing oils





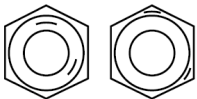
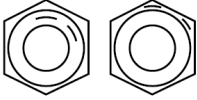



Zinc-dichromate (ZND) – a yellow colored chemical plating formula yellow applied to the hardware

Nominal size	SAE Grade (GR) 5 bolt and nut	SAE Grade (GR) 8 bolt and nut	Flange locknut GR F w/ GR 5 bolt	Flange locknut GR G w/ GR 8 bolt
	PLN and ZND	PLN and ZND	ZND	ZND
	N·m (lb in)	N·m (lb in)	N·m (lb in)	N·m (lb in)
1/4 (0.25) in	14 (124)	20 (177)	15.4 (136)	22 (195)
5/16 (0.3125) in	29 (257)	42 (372)	32 (283)	46 (407)
	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)	N·m (lb ft)
3/8 (0.375) in	52 (38)	74 (54)	57 (42)	81 (9)
7/16 (0.4375) in	84 (62)	118 (87)	92 (68)	130 (96)
1/2 (0.50) in	127 (94)	180 (133)	140 (103)	198 (146)
9/16 (0.5625) in	184 (136)	259 (191)	202 (150)	285 (210)
5/8 (0.625) in	254 (187)	358 (264)	279 (206)	394 (290)
3/4 (0.75) in	450 (332)	636 (469)	495 (365)	700 (516)
7/8 (0.875) in	725 (535)	1024 (755)	798 (589)	1126 (831)
1 (1.0) in	1088 (802)	1536 (1133)	1197 (882)	1690 (1246)

Identification marking

Grades of inch bolts and free-spinning nuts


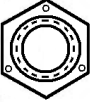
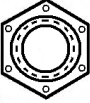

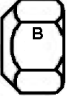




SAE (J995) bolt head and nut grade identification

Grade identification marking	Grade Marking description
	Grade 2 No line marks
	Grade 5 Three line marks
	Grade 8 Six line marks
	Grade 2 No circumferential line marks
	Grade 5 Two circumferential line marks located 120° apart
	Grade 2 Two circumferential line marks located 60° apart
	Grade 2 No circumferential line marks
	Grade 5 Two circumferential line marks located 120° apart
	Grade 8 Two circumferential line marks located 60° apart

Grades of inch prevailing torque locknuts, all metal (three common marking methods)

On prevailing torque locknuts, the grade of nut is identified by one of three different sets of markings that denote the strength level and manufacturer.

Common prevailing torque locknut grade identification markings

Grade identification marking	Grade Marking description
	Grade A No marks
	Grade B (hex nut) and Grade F (flange nut) Three raised or indented dot marks (Marks do not have to be in corners.)
	Grade C (hex nut) and Grade F (flange nut) Six raised or indented dot marks (Marks do not have to be in corners.)
	Grade A No letter mark on side flat
	Grade B Letter B on side flat
	Grade C Letter C on side flat
	Grade A No notches
	Grade B One circumferential notch on all six corners
	Grade C Two circumferential notches on all six corners

Standard torque data for hydraulic tubes and fittings

Lubrication of fittings

CNH Industrial requires that O-Ring Boss (ORB) connectors have Teflon-coated O-rings, eliminating the need for O-ring lubrication during installation.

NOTICE: Avoid application of grease or other lubricants on 37 ° flare fittings and ORB fittings.

Application of grease and lubricants may cause the following:

- Significant change in the torque required to properly tighten the connection
- Reduction of the connection's resistance to vibration
- Displacement of an elastomer seal during tightening
- Grease or lubricant extrusion when connection is tightened to be mistaken for leakage.

Sealants on fitting

NOTICE: Use of thread-locking compounds such as Loctite® or an equivalent on 37 ° flare fittings and ORB fittings are prohibited. This does not apply to tapered thread connections.

Application of thread-locking compounds may cause the following:

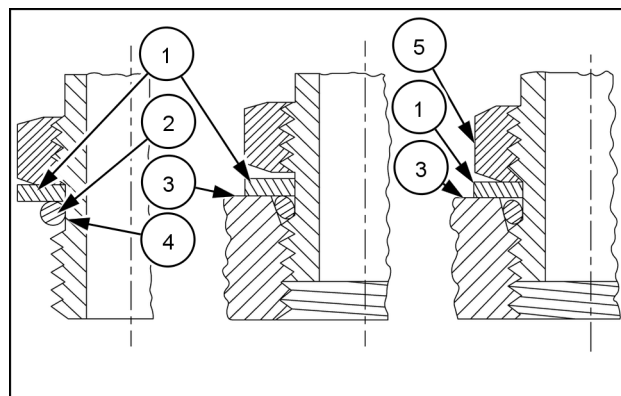
- Significant change in the torque required to properly tighten the connection
- Reduction of serviceability of the joint connection
- Prevention of the O-ring from properly sealing if the compound gets onto the O-ring

Installation of adjustable connectors in straight thread O-Ring Boss (ORB) Connectors

NOTICE: O-Ring Boss (ORB) Connectors can be used multiple times. Always inspect the O-ring for damage prior to installation. Damaged O-rings will cause leakage and affect performance.

Adjustable (swivel) O-Ring Boss (ORB) Connectors – Install

1. Remove the protective caps only immediately prior to assembly.
2. Inspect the components to make sure that the male and female port threads, and the sealing surfaces are free of burrs, nicks, and scratches, or any foreign material.
 - Check that the back-up washer (1) has not been installed after the O-ring (2).
3. If installation of the O-ring is necessary. Take special care to not cut the O-ring on the threads.
 - A. Install the back-up washer (1).
 - B. Apply electrical tape over the threads to protect the O-ring.
 - C. Install the O-ring (2) into the groove (4), as shown, against the metal back-up washer (1).
 - D. Remove the protective tape from the threads.
4. Completely back-off the locknut (5) and metal back-up washer (1).



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NOTE: Make sure that the back-up washer is not loose, and is pushed up as far as possible.

- Screw the connector into the port until the back-up washer **(1)** or the retaining ring contacts the face of the port **(3)**.

NOTICE: Light wrenching may be necessary. Over tightening may damage the metal back-up washer.

- Position the fitting as needed by turning the head of the fitting counterclockwise up to a maximum of one turn.
- Using two properly size wrenches for the fittings, hold the head end of the fitting with one wrench, and then, with the second wrench torque the locknut **(5)** and washer **(1)** against the face of the port **(3)** to the proper specified torque value.

Nonadjustable O-Ring Boss (ORB) Connectors – Install

- Remove the protective caps only immediately prior to assembly.
- Inspect the components to make sure that the male and female port threads, and the sealing surfaces are free of burrs, nicks, and scratches, or any foreign material.
- Make sure that the O-ring is seated into the groove and against the tightening nut.
- Screw the fittings into the port, and tighten to the specified torque.

Standard torque data for hydraulic tubes and fittings

NOTE: Definition of acronyms used in the following table – Society of Automotive Engineers (SAE) and Outer Diameter (OD).

37 ° flared fitting connections			
SAE Dash (-) size	Tubing OD mm (in)	Thread size	Torque N·m (lb ft) – (+/- 10%)
– 2	3.18 (1/8)	5/16–24	8.25 (6.1)
– 3	4.76 (3/16)	3/8–24	11.5 (8.5)
– 4	6.35 (1/4)	7/16–20	15.5 (11.4)
– 5	7.94 (5/16)	1/2–20	20 (14.8)
– 6	9.52 (3/8)	9/16–18	25 (18.4)
– 8	12.7 (1/2)	3/4–16	52 (38.4)
– 10	15.88 (5/8)	7/8–14	81 (59.7)
– 12	19.05 (3/4)	1-1/16–12	112 (82.6)
– 14	22.22 (7/8)	1-3/16–12	133 (98.1)
– 16	25.4 (1)	1-5/16–12	155 (114.3)
– 20	31.75 (1-1/4)	1-5/8–12	180 (132.8)
– 24	38.1 (1-1/2)	1-7/8–12	225 (166)
– 32	50.8 (2)	2-1/2–12	348 (256.7)

Installing and torquing 37 ° flared fittings;

1. Install the fitting, and then torque to the specified torque.
2. Loosen the fitting, and then torque once more to the specified torque.

NOTE: Definition of acronyms used in the following table – Society of Automotive Engineers (SAE), Outer Diameter (OD), O-Ring Boss (ORB).

Inch ORB port non-adjustable and adjustable connections				
SAE Dash (-) size	Tubing OD mm (in)	Thread size	Ferrous Torque N·m (lb ft) – (+/- 10%)	Non-ferrous Torque N·m (lb ft) – (+/- 10%)
- 2	3.18 (1/8)	5/16-24	8.5 (6.3)	5 (3.7)
- 3	4.76 (3/16)	3/8-24	10.5 (7.7)	6.3 (4.6)
- 4	6.35 (1/4)	7/16-20	19 (14)	11.5 (8.5)
- 5	7.94 (5/16)	1/2-20	26 (19.2)	15.5 (11.4)
- 6	9.52 (3/8)	9/16-18	32 (23.6)	19 (14)
- 8	12.7 (1/2)	3/4-16	53 (39.1)	32 (23.6)
- 10	15.88 (5/8)	7/8-14	63 (46.5)	38 (28)
- 12	19.05 (3/4)	1-1/16-12	100 (73.8)	60 (44.6)
- 14	22.22 (7/8)	1-3/16-12	131 (96.6)	79 (58.3)
- 16	25.4 (1)	1-5/16-12	156 (115.1)	94 (69.3)
- 20	31.75 (1-1/4)	1-5/8-12	210 (154.9)	126 (92.9)
- 24	38.1 (1-1/2)	1-7/8-12	220 (162.3)	132 (97.4)
- 32	50.8 (2)	2-1/2-12	315 (232.3)	189 (139.4)

NOTE: Definition of acronyms used in the following table – Society of Automotive Engineers (SAE), Outer Diameter (OD), O-Ring Boss (ORB).

Inch ORB port plugs				
SAE Dash (-) size	Thread size	Ferrous		Non-Ferrous Torque N·m (lb ft) – (+/- 10%)
		Internal hex Torque N·m (lb ft) – (+/- 10%)	External hex Torque N·m (lb ft) – (+/- 10%)	
- 2	5/16-24	7.5 (5.5)	12.5 (9.2)	7.5 (5.5)
- 3	3/8-24	14.5 (10.7)	21 (15.5)	12.5 (9.2)
- 4	7/16-20	21 (15.5)	37 (27.3)	22 (16.2)
- 5	1/2-20	28 (20.7)	42 (31)	25 (18.4)
- 6	9/16-18	47 (35)		28 (21)
- 8	3/4-16	89 (66)		53 (39)
- 10	7/8-14	116 (86)		70 (52)
- 12	1-1/16-12	176 (130)		106 (78)
- 14	1-3/16-12	247 (182)		148 (109)
- 16	1-5/16-12	284 (209)		170 (125)
- 20	1-5/8-12	357 (263)		214 (158)
- 24	1-7/8-12	441 (325)		265 (195)
- 32	2-1/2-12	536 (395)		322 (237)

Tapered thread port – Sealants

The threads of a tapered thread port connection are design to give the threads self-sealing ability, but variations in the condition of the mating threads, fitting and port materials, assembly procedures and operating conditions make secure self-sealing uncertain and inconsistent when relying on the threads alone. Some type of sealant is required to achieve the proper seal and, in some cases, provide additional lubricity to prevent galling.

Sealant types include Polytetrafluorethylene (PTFE) tape, paste sealants, and anaerobic liquids.

NOTICE: PTFE tape and paste sealants may contribute to hydraulic system contamination. Anaerobic liquids are sensitive to process variation, due to the required curing period and the necessity of carefully following the manufacturer's instructions.

Tapered thread port – Assembly

Preparation

Before assembling and torquing tapered thread port fittings;

1. Clean the threads with **LOCTITE® ODC-FREE CLEANER AND DEGREASER** cleaning solvent or an equivalent cleaning solvent.
2. Allow the cleaning the cleaning solvent to completely dry before application sealant.
3. Have a recommended sealant or equivalent available for application at assembly. Recommended sealants:
 - **LOCTITE® 567™ PST PIPE SEALANT** sealant for all fittings, including stainless steel
 - **LOCTITE® 565™ PST** sealant for most other metal fittings.
 - **LOCTITE® 545™** sealant for high filtration/zero contamination systems use.
 - For alternate use – PTFE tape

Assembly

The proper method of assembling tapered threaded connectors is to assemble them finger tight, and then wrench tighten further to the specified number of “turns from finger tight” as shown in the table that follows.

The following assembly procedure is recommended to minimize the risk of leakage and/or damage to components:

1. Remove the safety caps only immediately prior to assembly.
2. Inspect the components to make sure that the male and female port threads, and the sealing surfaces are free of burrs, nicks, and scratches, or any foreign material.
3. Apply the sealant/lubricant to the male pipe threads, if not pre-applied. The first one or two threads should not have sealant applied to them to avoid system contamination. If PTFE tape is used, it should be wrapped 1.5 turns to 2 turns in the clockwise direction when viewed from the pipe thread end.

NOTICE: Using more than two turns of tape may cause the port to distort or crack.

4. Screw the connector into the port to the finger tight position.
5. Wrench tighten the connector by the correct number of turns given in the table. If orientation of a shaped fitting is required, make sure that the final position of the connector is aligned to the desired position.

NOTICE: Never back off (loosen) pipe threaded connectors to achieve alignment.

Tapered thread port – Torque

NOTE: Definition of the acronym used in the following table – National Pipe Taper Fuel (NPTF)

NPTF Thread Size (inch)	Turns from finger tight
1/8–27	2 – 3
1/4–18	
3/8–18	
1/2–14	
3/4–14	
1–11 1/2	1.5 – 2.5
1 1/4–11 1/2	
1 1/2–11 1/2	
2–11 1/2	

MAINTENANCE CHART

Maintenance chart

Change fluid				Replace			
Grease				Adjust			
Check							
Maintenance action							Page no.
After the first 2 hours							
Wheels and tires – Check	x						6-15
After the first 8 hours							
Primary Power Take-Off (PTO) assembly – Grease	x						6-15
Swivel hitch trunnion assembly – Grease	x						6-16
Secondary Power Take-Off (PTO) assembly – Grease	x						6-16
Header cross drive Power Take-Off (PTO) shaft – Grease	x						6-17
Power Take-Off (PTO) overrunning and friction slip clutch – Grease	x						6-17
Cutterbar drive shaft – Grease	x						6-17
Conditioner rolls drive shafts and bearings – Grease	x						6-18
Tongue pivot pin – Grease	x						6-19
Flail conditioner hood adjustment crank – Grease	x						6-19
Wheel arms and header lift arms – Grease	x						6-20
After the first 10 hours							
Wheels and tires – Check	x						6-15
After the first 50 hours							
Flail conditioner hood adjustment crank – Grease	x						6-22
Wheel bearings – Grease (repack)	x						6-22
Swivel hitch gearbox – Change fluid		x					6-23
Reversing swivel gearbox – Change fluid		x					6-25
Bevel gearbox – Change fluid		x					6-27
Conditioner drive gearbox – Change fluid		x					6-27
Cutterbar module – Change fluid		x					6-28
Every 8 hours or daily							
Swivel hitch trunnion assembly – Grease	x						6-29
Wheel arms and header lift arms – Grease	x						6-29
Conditioner drive belt tension – Check	x						6-30
Cutterbar modules – Check	x						6-31
Cutterbar knives and hardware – Check	x						6-33
Crop lifters – Check	x						6-34
Conditioner rolls timing – Check	x						6-34
Every 50 hours							
Primary Power Take-Off (PTO) assembly – Grease	x						6-36
Secondary Power Take-Off (PTO) assembly – Grease	x						6-36
Header cross drive Power Take-Off (PTO) shaft – Grease	x						6-36
Power Take-Off (PTO) overrunning and friction slip clutch – Grease	x						6-36
Tongue pivot pin – Grease	x						6-36
Cutterbar drive shaft – Grease	x						6-36
Conditioner rolls drive shafts and bearings – Grease	x						6-36
Flail conditioner hood adjustment crank – Grease	x						6-22
Conditioner rolls pressure crank – Grease	x						6-37
Swivel hitch gearbox oil level – Check	x						6-38
Reversing swivel gearbox oil level – Check	x						6-39
Bevel gearbox oil level – Check	x						6-40
Conditioner drive gearbox oil level – Check	x						6-40
Cutterbar module oil level – Check	x						6-41
Wheels and tires – Check	x						6-15
Every 300 hours or yearly							

Change fluid			Replace		
Grease			Adjust		
Check					
Maintenance action					Page no.
Wheel bearings – Grease (repack)	x				6-42
Swivel hitch gearbox – Change fluid		x			6-42
Reversing swivel gearbox – Change fluid		x			6-42
Bevel gearbox – Change fluid		x			6-42
Conditioner drive gearbox – Change fluid		x			6-42
Cutterbar module – Change fluid		x			6-42
As required					
Conditioner drive belt – Replace			x		6-43
Cutterbar discs – Check	x				6-44
ShockPRO™ hubs – Replace			x		6-45
Cutterbar knives – Replace			x		6-48
Quick-change knives – Replace			x		6-50
Quick-change knife hardware – Replace			x		6-52
Quick-change knife spring plate – Replace			x		6-53
Rock guards – Replace			x		6-56
Skid shoes – Replace			x		6-56
Friction slip clutch – Burnish (resurface)				x	6-57
Conditioner rolls timing – Adjust				x	6-58
Flail – Replace			x		6-59
Flail hood liner – Replace			x		6-60

After the first 2 hours

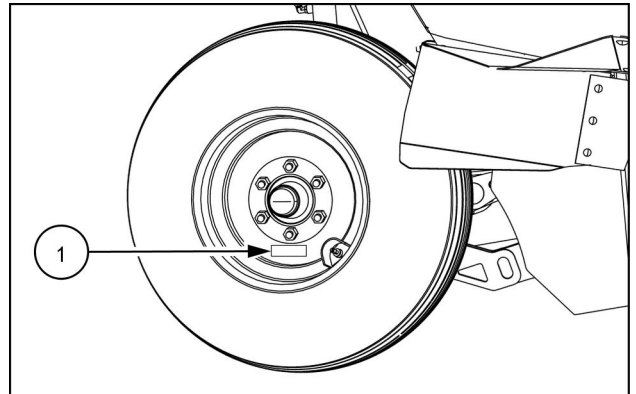
Wheels and tires – Check

NOTICE: You must check the torque of the wheel lug bolts after the first 2 hours of operation, after the first 10 hours of operation, and every 50 hours of operation thereafter. You must also check the torque of the wheel lug bolts any time that you remove and install a wheel.

The disc mower-conditioner requires 12.5 x 15, eight-ply tubeless agricultural tires.

NOTICE: Do not substitute a tire of a different size. A substitute tire size may compromise the load-carrying capacity.

1. Check and inflate the tires to **248 kPa (36 psi)**.
2. Check the torque of the wheel lug bolts.
3. Perform a follow-up check of the wheel bolt torque after every 50 hours of operation.
 - Wheel lug bolt torque specification decal (1) – **203 N·m (150 lb ft)**
 - Limit highway transport speeds to **32 km/h (20 mph)** to prevent tire failures.



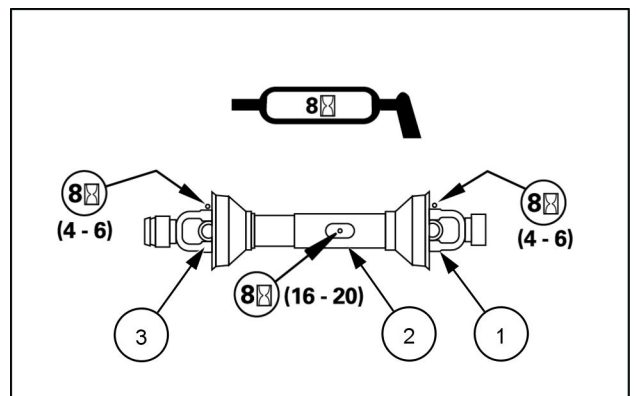
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After the first 8 hours

Primary Power Take-Off (PTO) assembly – Grease

Grease the following fittings on the primary Power Take-Off (PTO) shaft using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – Front Universal joint (U-joint) (1 fitting) (4 – 6 pumps)
- (2) – Sliding PTO shaft (1 fitting) (16 – 20 pumps)
 - Slide the front and rear PTO sections from the fully retracted position to the fully extended position to distribute the grease the full length of the internal PTO shaft.
- (3) – Rear U-joint (1 fitting) (4 – 6 pumps)

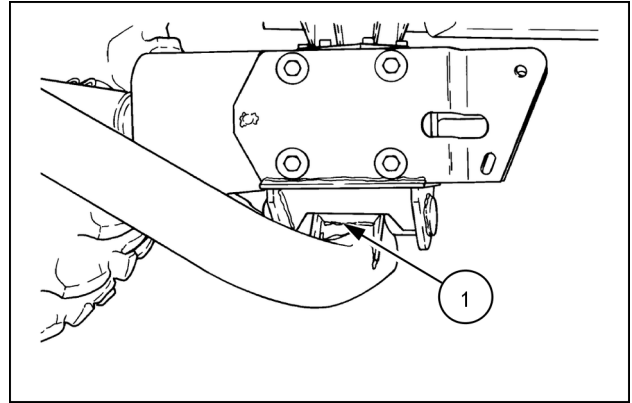


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Swivel hitch trunnion assembly – Grease

Grease the following fitting using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – Swivel hitch trunnion assembly (1 fitting) (4 – 6 pumps)



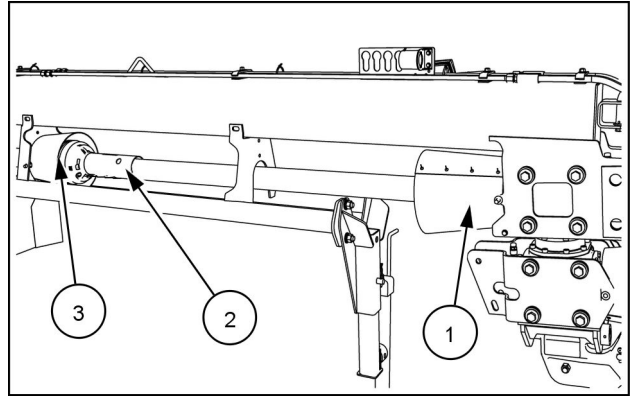
97-1547N 1

Secondary Power Take-Off (PTO) assembly – Grease

Telescoping Power Take-Off (PTO) shaft

Grease the following points on the secondary Power Take-Off (PTO) drive shaft using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – Front Universal joint (U-joint) (1 fitting) (4 – 6 pumps)
- (2) – Telescoping section (1 fitting) (16 – 20 pumps)
- (3) – Rear U-joint (1 fitting) (4 – 6 pumps)

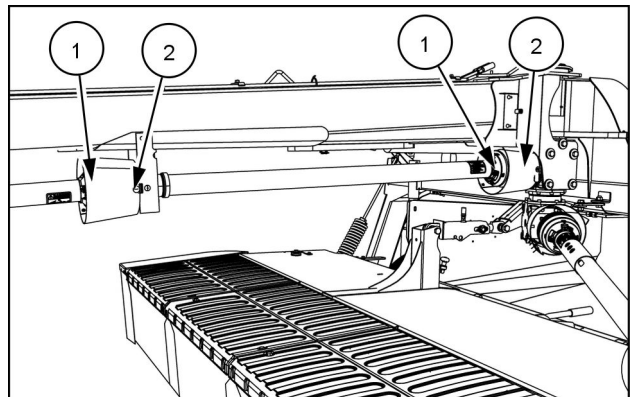


NHIL13HT00503AA 1

Non-telescoping Power Take-Off (PTO) shafts

Grease the following points on the non-telescoping secondary Power Take-Off (PTO) drive shaft using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – U-joint (1 fitting) (4 – 6 pumps)
- (2) – Slip yoke (1 fitting) (4 – 6 pumps)

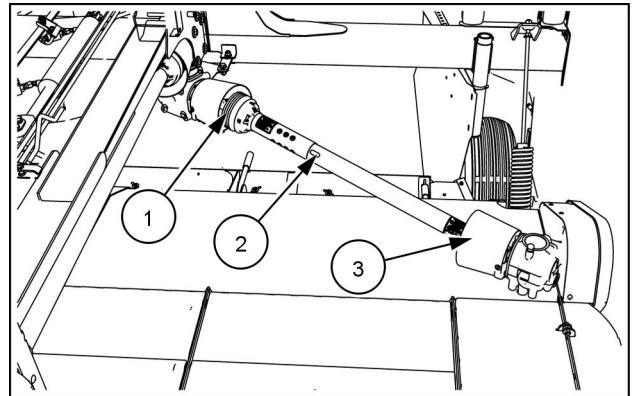


NHIL13HT00408AA 2

Header cross drive Power Take-Off (PTO) shaft – Grease

Grease the following fittings on the secondary Power Take-Off (PTO) shaft using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – Rear Universal joint (U-joint) (1 fitting) (4 – 6 pumps)
- (2) – Telescoping section (1 fitting) (16 – 20 pumps)
- (3) – Front U-joint (1 fitting) (4 – 6 pumps)

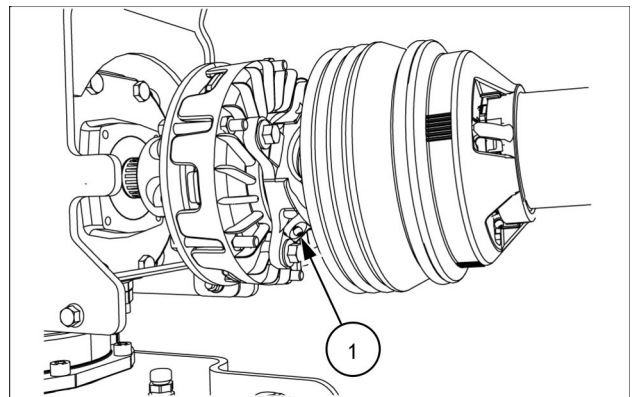


NHIL13HT00500AA 1

Power Take-Off (PTO) overrunning and friction slip clutch – Grease

Grease the following fitting on the Power Take-Off (PTO) overrunning and friction slip clutch using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

- (1) – Overrunning and friction slip clutch (1 fitting) (8 – 10 pumps)

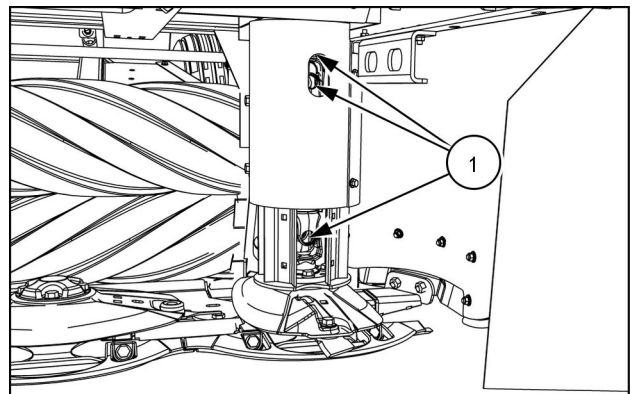


NHIL15HT00074AA 1

Cutterbar drive shaft – Grease

Grease the following fittings on the drive shaft on the left-hand side of the cutterbar using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

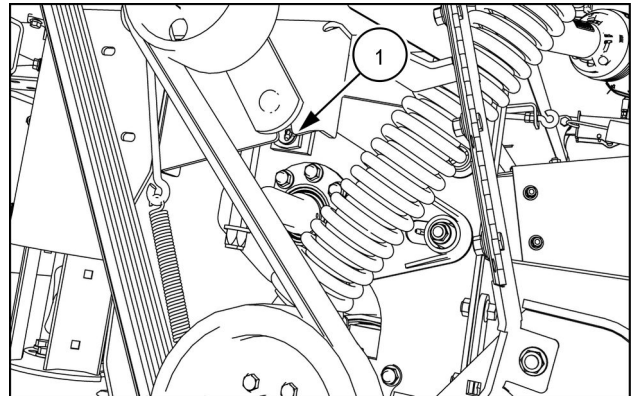
- (1) – Drive shaft (3 fittings) (4 – 6 pumps each)



NHIL13HT00410AA 1

Conditioner rolls drive shafts and bearings – Grease

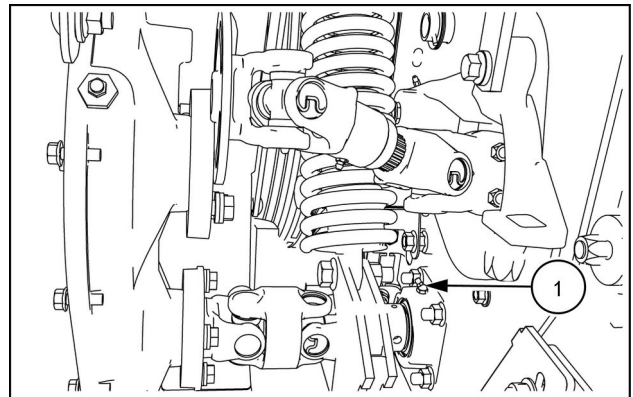
NOTE: Use **NEW HOLLAND AMBRA HI TEMP EP GREASE** for the following grease points.



NHIL13HT00505AA 1

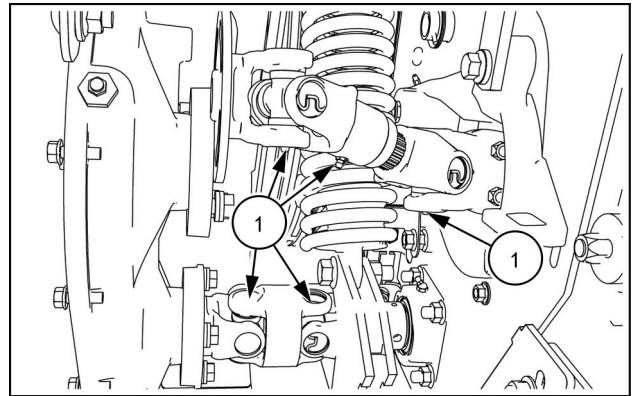
Conditioner bearings – Roll and flail conditioning.
Grease the lower roll bearings **(1)** (4 - 6 pumps)

NOTE: Right-hand side shown.



NHIL13HT00504AA 2

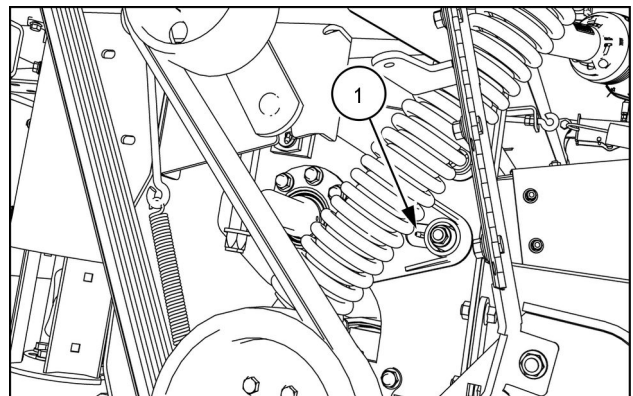
Conditioner roll drive shafts - roll conditioning only.
Grease the upper and lower roll drive shafts **(1)** (3 fittings on upper drive shaft and 2 fittings on lower drive shaft, 4 - 6 pumps each).



NHIL13HT00504AA 3

Upper conditioner roll pivot arms.
Grease the upper roll arm **(1)** (4 - 6 pumps).

NOTE: Left-hand side shown.

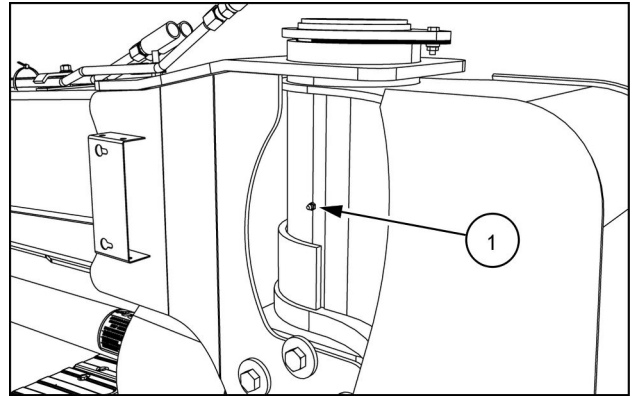


NHIL13HT00505AA 4

Tongue pivot pin – Grease

NOTE: Use **NEW HOLLAND AMBRA HI TEMP EP GREASE** for the following grease point.

Grease the tongue pivot pin **(1)** (4 - 6 pumps).

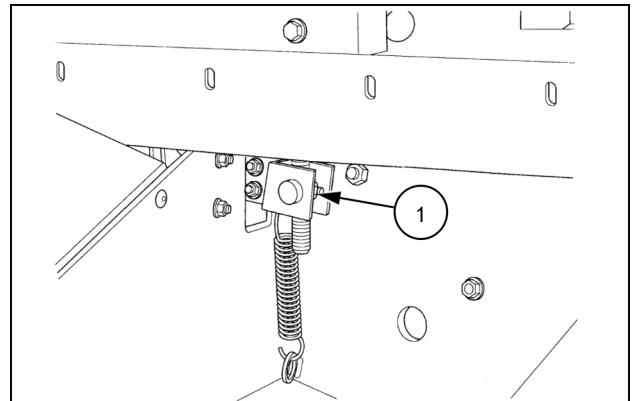


NHIL13HT00412AA 1

Flail conditioner hood adjustment crank – Grease

NOTE: Use **NEW HOLLAND AMBRA HI TEMP EP GREASE** for the following grease points.

Grease the hood adjustment crank **(1)** (4 - 6 pumps).



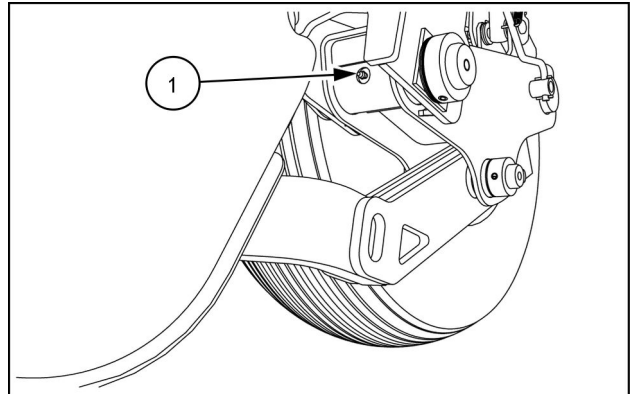
19985254N 1

Wheel arms and header lift arms – Grease

Wheel arm

Grease the following fittings on the wheel arm using **NEW HOLLAND AMBRA HI TEMP EP GREASE**:

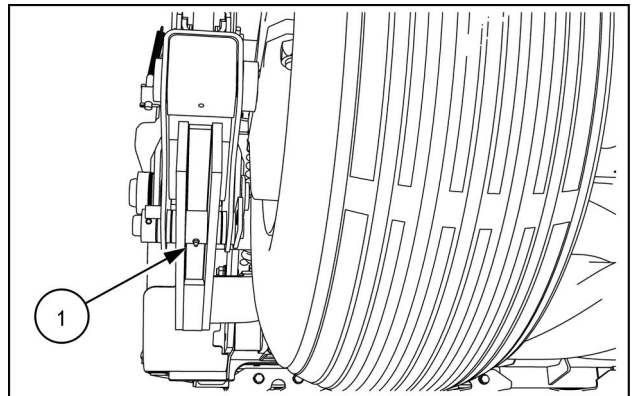
- **(1)** – Right-hand side and left-hand side wheel arm pivots (1 fitting per side) (4 – 6 pumps each)



NHIL13HT00506AA 1

Header lift arm

Grease the lift arm pivots **(1)** on both the left-hand side and the right-hand side (4 - 6 pumps).



NHIL13HT00505AA 2

After the first 10 hours

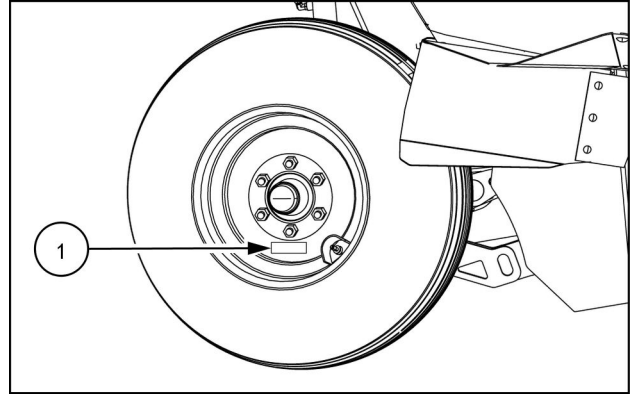
Wheels and tires – Check

NOTICE: You must check the torque of the wheel lug bolts after the first 2 hours of operation, after the first 10 hours of operation, and every 50 hours of operation thereafter. You must also check the torque of the wheel lug bolts any time that you remove and install a wheel.

The disc mower-conditioner requires 12.5 x 15, eight-ply tubeless agricultural tires.

NOTICE: Do not substitute a tire of a different size. A substitute tire size may compromise the load-carrying capacity.

1. Check and inflate the tires to **248 kPa (36 psi)**.
2. Check the torque of the wheel lug bolts.
3. Perform a follow-up check of the wheel bolt torque after every 50 hours of operation.
 - Wheel lug bolt torque specification decal (1) – **203 N·m (150 lb ft)**
 - Limit highway transport speeds to **32 km/h (20 mph)** to prevent tire failures.



NHIL16HT00001AA 1

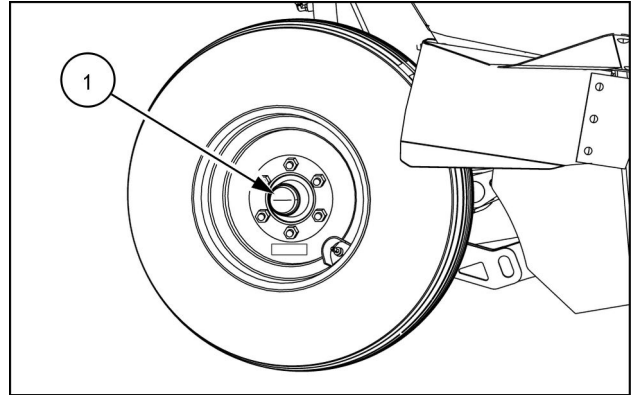
After the first 50 hours

Flail conditioner hood adjustment crank – Grease

See “Flail conditioning hood adjustment crank – Grease” (6-19).

Wheel bearings – Grease (repack)

Use **NEW HOLLAND AMBRA HI TEMP EP GREASE** to repack the wheel bearings (1).



NHIL16HT00001AA 1

Swivel hitch gearbox – Change fluid

The swivel hitch gearbox assembly consists of an upper-half gearbox and a lower-half gearbox that are connected together. You must change the oil in each half separately after the first 50 hours of operation, and every 300 hours of operation or yearly thereafter.

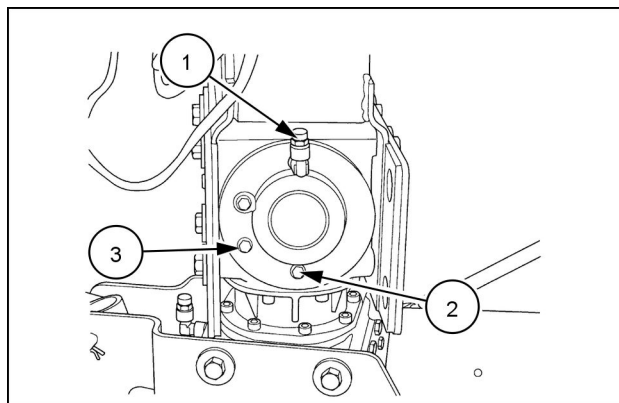
Drain the oil in the upper-half and the lower-half swivel hitch gearbox and fill it with fresh **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

Upper-half swivel hitch gearbox

1. Position a pan underneath the upper-half swivel hitch gearbox to drain the oil into.
2. Remove the oil drain plug **(1)** from the upper-half swivel hitch gearbox.
3. Remove the combination breather and oil fill plug **(2)** from the top of the upper-half swivel hitch gearbox.
4. Allow the oil to completely drain from the upper-half swivel hitch gearbox.
5. Clean the threads of the oil drain plug.
6. Apply fresh **LOCTITE® 598™ BLACK** sealant to the threads of the oil drain plug.
7. Install the oil drain plug **(1)** in the oil drain plug hole and tighten it securely.
8. Remove the oil level check plug **(3)** from the oil level check plug hole.
9. Use a funnel to fill the upper-half swivel hitch gearbox with fresh oil via the oil fill hole until the oil level reaches the oil level check plug hole.

NOTE: The upper-half swivel hitch gearbox has a total capacity of approximately **1100 mL (37 US fl oz)**.

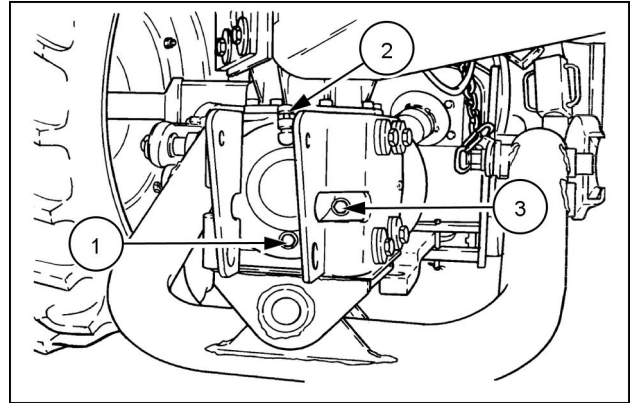
10. Install the oil level check plug **(3)** in the oil level check plug hole and tighten it securely.
11. Install the combination breather and oil fill plug **(1)** into the oil fill hole at the top of the upper-half swivel hitch gearbox and tighten it securely.



19985234N 1

Lower-half swivel hitch gearbox

1. Position a pan underneath the lower-half swivel hitch gearbox to drain the oil into.
 2. Remove the oil drain plug **(1)** from the lower-half swivel hitch gearbox.
 3. Remove the combination breather and oil fill plug **(2)** from the top of the lower-half swivel hitch gearbox.
 4. Allow the oil to completely drain from the lower-half swivel hitch gearbox.
 5. Clean the threads of the oil drain plug.
 6. Apply fresh **LOCTITE® 598™ BLACK** sealant to the threads of the oil drain plug.
 7. Install the oil drain plug **(1)** in the oil drain plug hole and tighten it securely.
 8. Remove the oil level check plug **(3)** from the oil level check plug hole.
 9. Use a funnel to fill the lower-half swivel hitch gearbox with fresh oil via the oil fill hole until the oil level reaches the oil level check plug hole.
- NOTE:** The lower-half swivel hitch gearbox has a total capacity of approximately **2000 mL (68 US fl oz)**.
10. Install the oil level check plug **(3)** in the oil level check plug hole and tighten it securely.
 11. Install the combination breather and oil fill plug **(1)** into the oil fill hole at the top of the lower-half swivel hitch gearbox and tighten it securely.



97-1550N 2

Reversing swivel gearbox – Change fluid

The reversing swivel gearbox assembly at the rear of the tongue consists of an upper-half gearbox and a lower-half gearbox that are connected together. Unlike the swivel hitch gearbox at the front of the tongue, the reversing swivel gearbox reverses the direction of rotation of the Power Take-Off (PTO) shaft. You must change the oil in each half separately after the first 50 hours of operation, and every 300 hours of operation or yearly thereafter.

Drain the oil in the upper-half and the lower-half reversing swivel gearbox and fill it with fresh **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

Upper-half reversing swivel gearbox

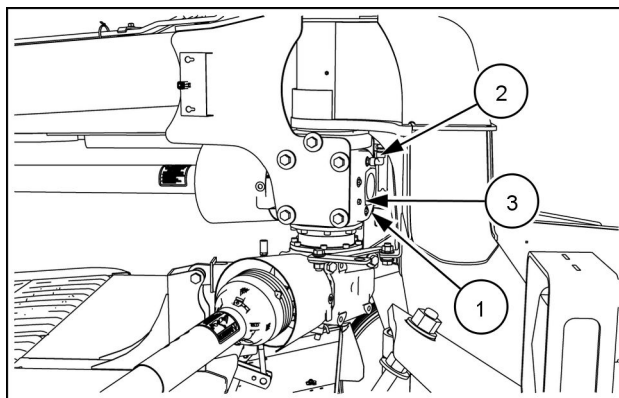
1. Position a pan underneath the upper-half reversing swivel gearbox to drain the oil into.
2. Remove the oil drain plug **(1)** from the bottom of the upper-half reversing swivel gearbox.

NOTE: You will need to rotate the tongue entirely to the right-hand side in order to access the oil drain plug.

3. Remove the combination breather and oil fill plug **(2)** from the top of the upper-half reversing swivel gearbox.
4. Allow the oil to completely drain from the upper-half reversing swivel gearbox.
5. Clean the threads of the oil drain plug.
6. Apply fresh **LOCTITE® 598™ BLACK** sealant to the threads of the oil drain plug.
7. Install the oil drain plug **(1)** in the oil drain plug hole and tighten it securely.
8. Remove the oil level check plug **(3)** from the oil level check plug hole.
9. Use a funnel to fill the upper-half reversing swivel gearbox with fresh oil via the oil fill hole until the oil level reaches the oil level check plug hole.

NOTE: The upper-half reversing swivel gearbox has a total capacity of approximately **1100 mL (37 US fl oz)**.

10. Install the oil level check plug **(3)** in the oil level check plug hole and tighten it securely.
11. Install the combination breather and oil fill plug **(1)** into the oil fill hole at the top of the upper-half reversing swivel gearbox and tighten it securely.



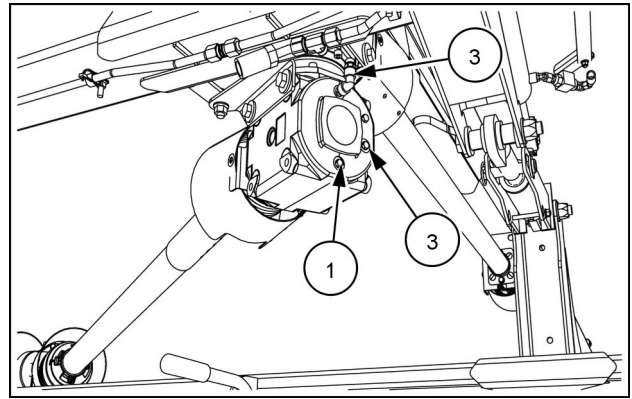
NHIL13HT00508AA 1

Lower-half reversing swivel gearbox

1. Position a pan underneath the lower-half reversing swivel gearbox to drain the oil into.
2. Remove the oil drain plug **(1)** from the bottom of the lower-half reversing swivel gearbox.
3. Remove the combination breather and oil fill plug **(2)** from the top of the lower-half reversing swivel gearbox.
4. Allow the oil to completely drain from the lower-half reversing swivel gearbox.
5. Clean the threads of the oil drain plug.
6. Apply fresh **LOCTITE® 598™ BLACK** sealant to the threads of the oil drain plug.
7. Install the oil drain plug **(1)** in the oil drain plug hole and tighten it securely.
8. Remove the oil level check plug **(3)** from the oil level check plug hole.
9. Use a funnel to fill the lower-half reversing swivel gearbox with fresh oil via the oil fill hole until the oil level reaches the oil level check plug hole.

NOTE: The lower-half reversing swivel gearbox has a total capacity of approximately **2000 mL (68 US fl oz)**.

10. Install the oil level check plug **(3)** in the oil level check plug hole and tighten it securely.
11. Install the combination breather and oil fill plug **(1)** into the oil fill hole at the top of the lower-half reversing swivel gearbox and tighten it securely.



NHIL13HT00520AA 2

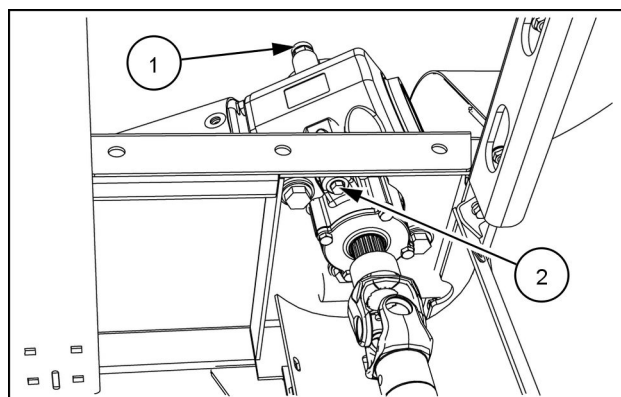
Bevel gearbox – Change fluid

Change the oil using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

The bevel gearbox oil should be changed every 300 hours or yearly, whichever comes first.

1. Access the drain plug by removing the cutterbar Power Take-Off (PTO) shield.
2. Drain oil by removing the plug **(2)** on the bottom of the bevel gearbox.
3. Apply **LOCTITE® 598™ BLACK** or an equivalent sealant to the threads of the drain plug before reinstalling in the bevel gearbox.
4. Add oil by inserting a funnel into the hole **(1)** on the top of the bevel gearbox.

NOTE: The bevel gearbox holds approximately **710 mL (24 US fl oz)**.



NHIL13HT00509AA 1

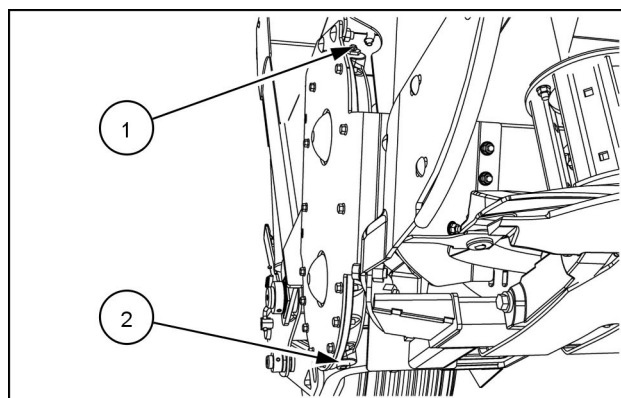
Conditioner drive gearbox – Change fluid

Change the oil using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

The conditioning roll drive gearbox oil should be changed every 300 hours or yearly, whichever comes first.

1. Drain oil by removing plug **(2)** on the bottom of the gearbox.
2. Apply **LOCTITE® 598™ BLACK** or equivalent sealant to the threads of the drain plug before reinstalling in the gearbox.
3. Add oil by inserting a funnel into the hole **(1)** on the top of the gearbox.

NOTE: The gearbox holds approximately **800 mL (27 US fl oz)**.



NHIL13HT00510AA 1

Cutterbar module – Change fluid

⚠ DANGER

Crushing hazard!

Safety locks built into the header lift system lock the header in the raised position. Engage the safety locks on both sides before working under a raised header. Failure to comply will result in death or serious injury.

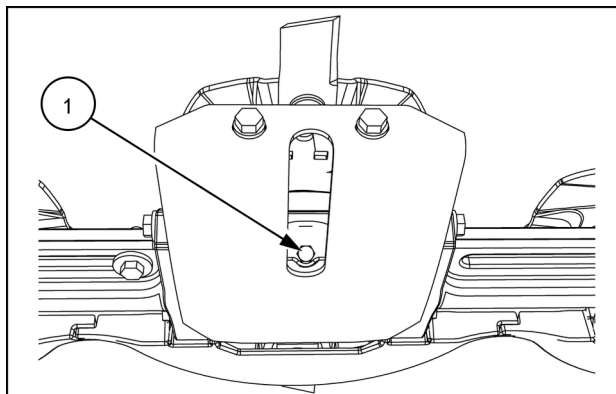
D0029A

Change the cutterbar module oil using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

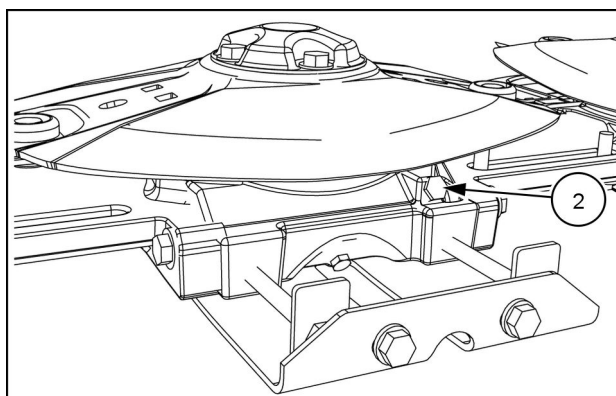
You must change the cutterbar module oil after the first 50 hours of use to remove any contaminants from the break-in process. After this, change the oil every 300 hours or yearly, whichever occurs first.

1. Raise the header and engage the header lift locks.
2. Lock the header tilt cylinder in the minimum tilt position.
3. Drain the oil by removing the drain plug **(1)** from the bottom of the module, through the slotted hole in the bottom of the skid shoe.
4. Apply **LOCTITE® 598™ BLACK** sealant or an equivalent sealant to the threads of the drain plug before installation into the module.
5. To add oil, insert a funnel into the hole **(2)** on the top of the module.
6. Check the oil level with the dipstick.

NOTE: The cutterbar module holds approximately **340 mL (11 US fl oz)**.



NHIL13HT00512AA 1



NHIL13HT00514AA 2

Every 8 hours or daily

Swivel hitch trunnion assembly – Grease

See “Swivel hitch trunnion assembly – Grease” (**6-16**).

Wheel arms and header lift arms – Grease

See “Wheel arms and header lift arms – Grease” (**6-20**).

Conditioner drive belt tension – Check

The conditioner belt must be properly tensioned at all times to prevent excessive slipping.

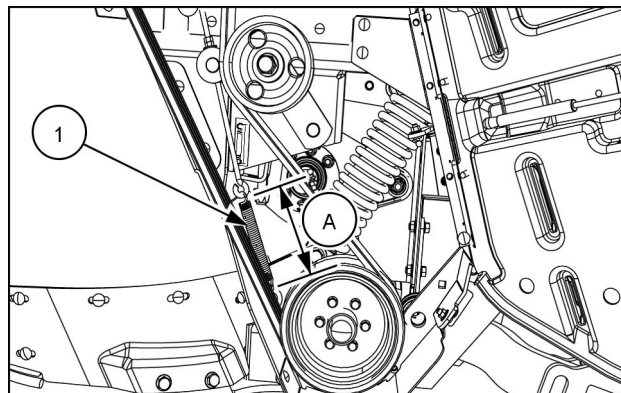
NOTICE: On roll conditioner units, a loose drive belt may result in crop wrapping around the conditioner rolls.

- Check the belt tension each day for the first few days of service with a new belt.
- Check the belt tension weekly thereafter.

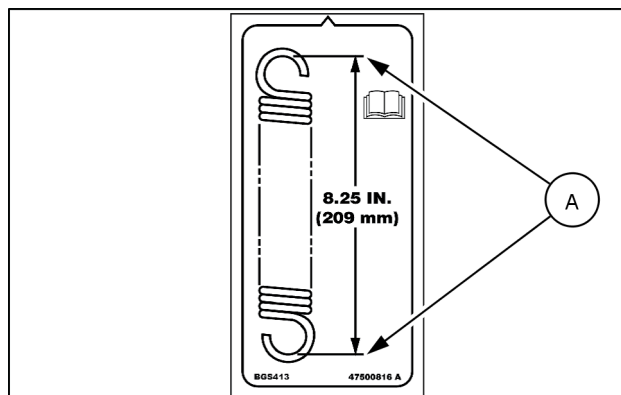
NOTE: Figure 1 represents a roll conditioning unit. A flail conditioning unit requires the same spring length adjustment.

The conditioner belt is tensioned by a tension spring (1). The belt is properly tensioned when the spring (1) is stretched to a length of (A) from inside hook to inside hook.

- (A) = 209 mm (8.25 in)



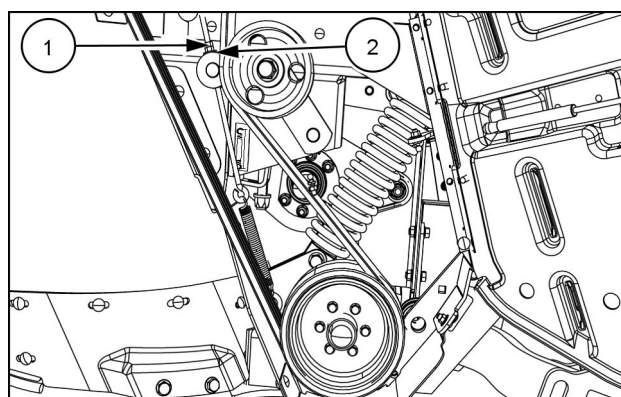
NHIL16HT00003FA 1



NHIL16HT00004AA 2

Spring length – Adjust

1. Loosen the jam nut (1).
2. Tighten the adjusting nut (2) to stretch the spring to the specified length.
3. Tighten the jam nut against the adjustment nut.



NHIL16HT00003FA 3

Cutterbar modules – Check

⚠ WARNING

Risk of harm during maintenance of the machine!

Before all adjustment, lubrication, and maintenance **ALWAYS**:

1. Raise the machine. Engage the header lift lock channels.
2. Disengage the Power Take-Off (PTO) drive.
3. Shut off the tractor engine. Remove the key.
4. Engage the tractor parking brake.
5. Make sure that all moving parts have stopped.

Failure to comply could result in death or serious injury.

W1451B

⚠ WARNING

Avoid injury!

Replace damaged knives, knife hardware, or discs immediately to prevent an accident. This includes cracked or severely deformed knives.

Failure to comply could result in death or serious injury.

W0411B

⚠ CAUTION

Sharp object hazard!

Wear gloves when handling worn discs.

Failure to comply could result in minor or moderate injury.

C0006A

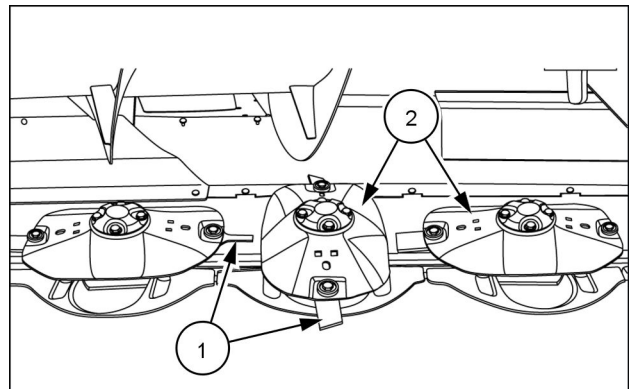
Inspect the cutterbar for damage or wear on a regular basis, such as when you turn or replace the disc knives.

Inspect the cutterbar more frequently when you operate the machine in rocky field conditions

NOTE: Broken knives and bent or cracked discs and crop lifters are a result of contact with solid foreign objects, and may indicate possible internal damage. A disc that is out of time can also indicate internal damage. The discs should be at 90° to each other when they are properly in-time.

NOTE: Misalignment or gaps between the disc modules and the spacers may indicate that the spacer bolts are loose or broken, or that there has been a failure of the dowel pins.

1. Inspect the external components for damage. Pay particular attention to the disc knives (1), the crop lifters (if applicable), and the discs (2).

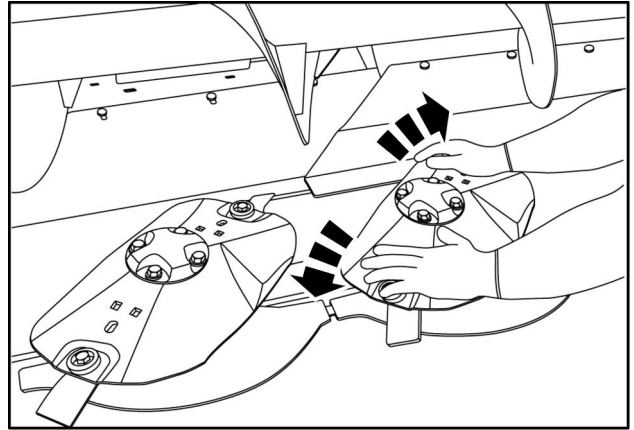


93107691 1

2. Carefully grab both ends of each disc, and apply a “rocking” movement of the disc with side-to-side and up-and-down movements.

NOTE: A small amount of vertical movement, about **0.8 mm (1/32 in)** measured at the knife bolt, is normal. An excessive amount of movement may be the result of a loose disc hub bolt, or could indicate that the top cap housing or bearings are worn.

3. Check the torque of the disc bolts and the disc hub bolts of any disc modules that exhibit excessive “rocking” movement.
 - If the bolts are tight and movement still exists, you may need to replace the top cap assembly. Contact your authorized NEW HOLLAND dealer for more information.

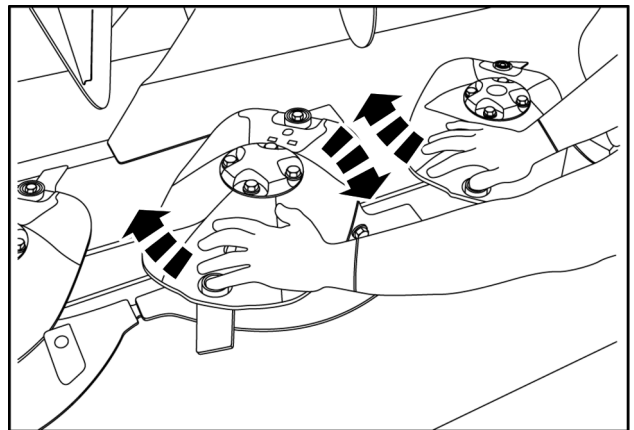


931002980 2

4. From the left-hand end of the cutterbar, grab both the number one and the number two discs, and slowly rotate both of the discs while you apply pressure against the direction of rotation.

NOTE: Movement of one of the discs may indicate a failure of the shock hub. Excessive free-play between discs may indicate wear or a failure of the module coupler shaft. Some rotational free-play of **4.75 mm (3/16 in)**, measured at the knife bolt, is normal as a result of the backlash in both of the gear sets.

5. Gradually work your way from the left-hand side of the cutterbar to the right-hand side of the cutterbar and check each of the disc modules with the disc module that is adjacent to that specific disc module.



931002981 3

6. Perform the following steps after you check all of the disc modules for evidence of internal failure:
 - A. Remove the discs and the top cap assemblies of any of the modules that you suspect have damage.
 - B. Inspect both the top cap assembly and the lower module assembly for excess play in the bearing, or for damage to the bearing or gear teeth.
 - C. Grasp the pinion shaft and rotate the adjacent discs to check for play in the splines of the module coupler shaft.

NOTE: If there is only damage to the top cap assembly components, you do not need to disassemble the cutterbar any further.

- D. Before you install a replacement top cap assembly, drain the oil out of the module and flush the lower module with a cleaning solvent in order to remove any contaminants.
 - E. Refill the module with fresh **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** gear oil.
7. Contact your NEW HOLLAND dealer if you discover damage to the lower module components or the module coupler shafts, or if you find misalignment or gaps between the modules and the spacers.

Cutterbar knives and hardware – Check

- All angled knives and all rock knives have two cutting edges. You can turn the knives over to utilize the opposite cutting edge to extend the life of each knife.

NOTICE: Do not use rock knives with the quick change knife system. The curve on the knife can cause excess load on the spring plates..

NOTICE: Do not turn a rock knife upside-down for use.

NOTE: Always install rock knives with the convex “crown” on the top.

- All angled knives have a directional twist. You must consider the directional twist when you replace knives on a clockwise or counterclockwise rotating disc. Each knife has a directional arrow stamp to indicate the direction of rotation.

Angled knives come in three varying levels of “twist.” Consider the field and crop conditions and the suggestions below when you choose a particular angle of knife:

- Knife angle – **18 °** – This knife provides more lift than the other knives, which is helpful when you operate in downed crop conditions
- Knife angle – **14 °** – This is a good general-purpose knife that provides a clean cut in most typical crop conditions
- Knife angle – **7 °** – This knife reduces “blow-down” of crop material when you operate in light or short crop conditions

NOTE: NEW HOLLAND recommends the use of 7 ° knives in stony conditions.

In addition to the three angles of knife twist, there are also three different styles of knife edge for you to choose from. Consider the field and crop conditions and the suggestions below when you choose a style of knife edge:

- Knife edge type: Smooth – This is a good general-purpose edge that provides a clean cut in most typical crop conditions.
- Knife edge type: Serrated – This type of edge can last longer and when you operate in fields with sandy or abrasive soil.
- Knife edge type: Rock – Rock knives are more durable and bend-resistant, which is helpful when you operate in rocky or stony field conditions.

In a timely and systematic manner, you must replace or turn over the knives to a new cutting edge in order to maintain good cutting performance. Dull knives will require more horsepower to cut the crop and will leave ragged crop stubble.

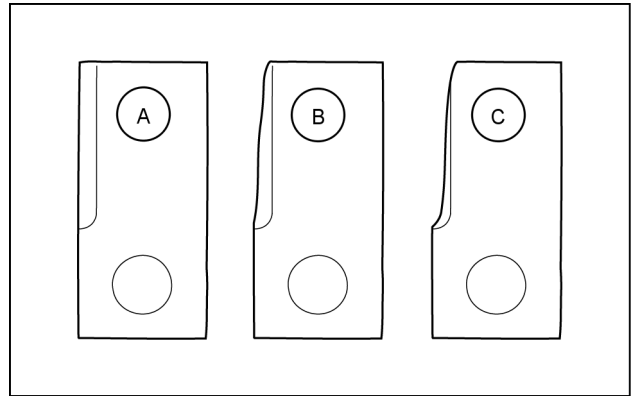
NOTICE: Replace the knives and the knife hardware immediately if they become too worn.

Replace the knives and/or the knife hardware when:

- The knives are bent
- The knife cutting edges are severely worn
- The knife mounting hole is elongated
- The knife bolt shank is worn
- The knife nut if the shoulder or threads show wear
- The eccentric knife nut is worn

Examples of knife conditions:

- Knife **(A)** – New
- Knife **(B)** – Worn cutting edge – Turn the knife edge over to the sharp edge, and then replace the knife position onto a counter-rotating disc head.
- Knife **(C)** – Severely worn cutting edge – Replace the knife with same angle type and rotational direction type (clockwise or counterclockwise).



NHIL14HT00878AA 1

Knife bolt

The standard knife bolt (non-quick change system) is a special self-locking bolt, sometimes referred to as a “patch bolt”. The patch bolts have a non-metallic adhesive bonded to a specific portion of the threads that provides a self-locking feature.

Replace the knife bolt:

- When the self-locking feature no longer provides sufficient prevailing torque resistance

NOTE: When there no longer is sufficient prevailing torque resistance, the knife nut can be easily turned on by hand.

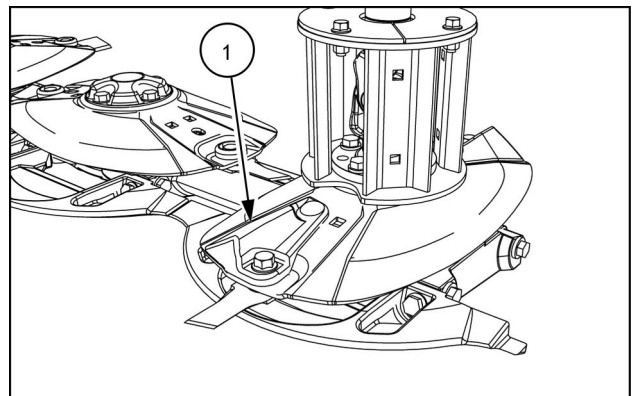
- After approximately four or five actions of being disassembled and assembled

Crop lifters – Check

Inspect the crop lifters daily for wear or damage.

Replace a crop lifter **(1)** if the condition of the crop lifter is as follows:

- The crop lifter sloping surface is worn thin or worn through.
- The crop lifter is bent or cracked.



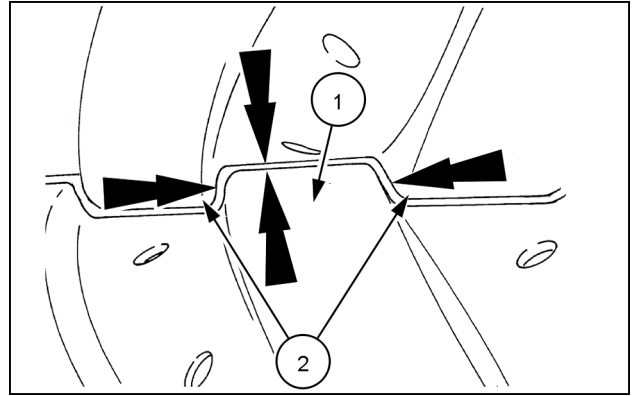
NHIL13HT00425AA 1

Conditioner rolls timing – Check

Check the timing of the conditioner rolls daily.

The following items indicate proper conditioner roll timing:

- Each lug **(1)** of one roll should be centered between two lugs **(2)** of the opposite roll.
- The lugs must not come into contact with each other. If you must adjust the timing, see “Conditioner roll timing – Adjust” **(6-58)** for more information.



NHIL16HT00026AA 1

Every 50 hours

Primary Power Take-Off (PTO) assembly – Grease

See “Primary Power Take-Off (PTO) assembly – Grease” (6-15).

Secondary Power Take-Off (PTO) assembly – Grease

See “Secondary Power Take-Off (PTO) assembly – Grease” (6-16).

Header cross drive Power Take-Off (PTO) shaft – Grease

See “Header cross drive Power Take-Off (PTO) shaft – Grease” (6-17).

Power Take-Off (PTO) overrunning and friction slip clutch – Grease

See “Power Take-Off (PTO) slip clutch – Grease” (6-17).

Tongue pivot pin – Grease

See “Tongue pivot pin – Grease” (6-19).

Cutterbar drive shaft – Grease

See “Cutterbar driveshaft – Grease” (6-17).

Conditioner rolls drive shafts and bearings – Grease

See “Conditioning roll driveshafts and bearings – Grease” (6-18).

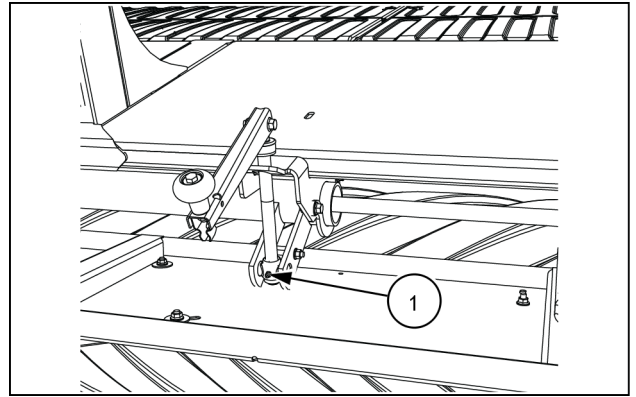
Flail conditioner hood adjustment crank – Grease

See “Flail conditioning hood adjustment crank – Grease” (6-19).

Conditioner rolls pressure crank – Grease

NOTE: Use **NEW HOLLAND AMBRA HI TEMP EP GREASE** for the following grease points.

Grease the roll pressure crank (1) (4 - 6 pumps).



NHIL13HT00396AA 1

Swivel hitch gearbox oil level – Check

The swivel hitch gearbox assembly consists of an upper-half gearbox and a lower-half gearbox that are connected together. You must check each gearbox oil level separately.

Maintain the oil level using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

Upper-half swivel hitch gearbox

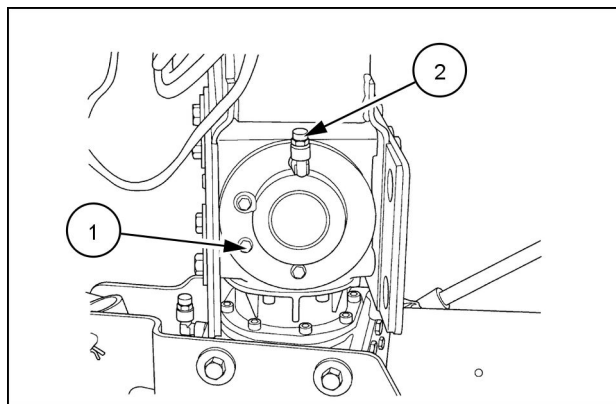
1. Remove the oil level check plug **(1)**.
2. Make sure that the oil level is up to the oil level check plug hole.

If you need to add additional oil to the gearbox:

3. Remove the combination breather and oil fill plug **(2)** at the top of the gearbox.
4. Use a funnel to fill the gearbox with additional fresh oil via the oil fill hole as necessary.

NOTE: The upper-half swivel hitch gearbox has a total capacity of approximately **1100 mL (37 US fl oz)**.

5. Install the combination breather and oil fill plug **(2)** in the oil fill hole.
6. Install the oil level check plug **(1)** in the oil level check plug hole.



19985234N 1

Lower-half swivel hitch gearbox

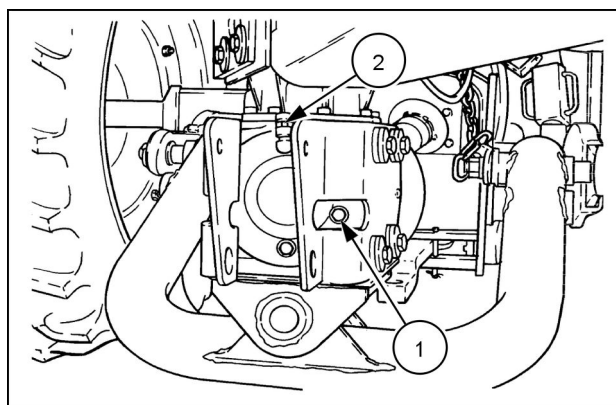
1. Remove the oil level check plug **(1)** from the rear of the lower-half gearbox through the slot in the jack stand.
2. Make sure that the oil level is up to the oil level check plug hole.

If you need to add additional oil to the gearbox:

3. Remove the combination breather and oil fill plug **(2)** at the top of the gearbox.
4. Use a funnel to fill the gearbox with additional fresh oil via the oil fill hole as necessary.

NOTE: The lower-half swivel hitch gearbox has a total capacity of approximately **2000 mL (68 US fl oz)**.

5. Install the combination breather and oil fill plug **(2)** in the oil fill hole.
6. Install the oil level check plug **(1)** in the oil level check plug hole on the rear of the lower-half gearbox through the slot in the jack stand.



97-1550N 2

Reversing swivel gearbox oil level – Check

The reversing swivel gearbox assembly is located at the base of the tongue and consists of an upper-half gearbox and a lower-half gearbox that are connected together. You must check each gearbox oil level separately.

Maintain the oil level using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

Upper-half reversing swivel gearbox

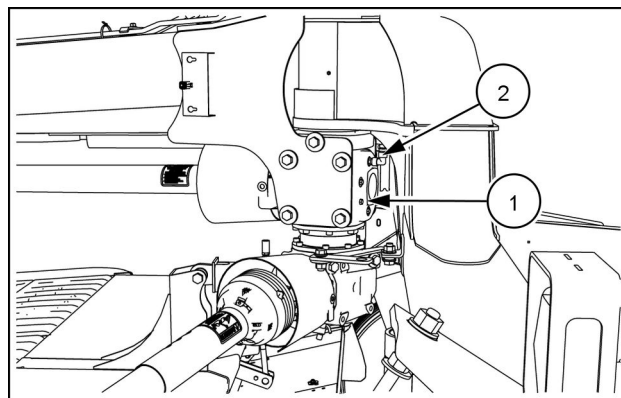
1. Remove the oil level check plug **(1)**.
2. Make sure that the oil level is up to the oil level check plug hole.

If you need to add additional oil to the gearbox:

3. Remove the combination breather and oil fill plug **(2)** at the top of the gearbox.
4. Use a funnel to fill the gearbox with additional fresh oil via the oil fill hole as necessary.

NOTE: The upper-half reversing swivel gearbox has a total capacity of approximately **1100 mL (37 US fl oz)**.

5. Install the combination breather and oil fill plug **(2)** in the oil fill hole.
6. Install the oil level check plug **(1)** in the oil level check plug hole.



NHIL13HT00508AA 1

Lower-half reversing swivel gearbox

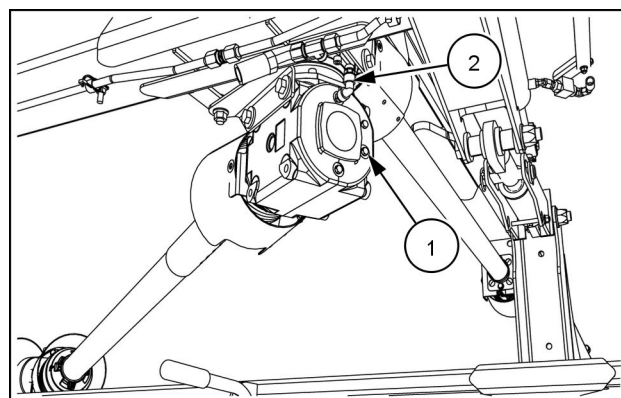
1. Remove the oil level check plug **(1)** from the rear of the lower-half reversing swivel gearbox.
2. Make sure that the oil level is up to the oil level check plug hole.

If you need to add additional oil to the reversing swivel gearbox:

3. Remove the combination breather and oil fill plug **(2)** at the top of the reversing swivel gearbox.
4. Use a funnel to fill the reversing swivel gearbox with additional fresh oil via the oil fill hole as necessary.

NOTE: The lower-half reversing swivel gearbox has a total capacity of approximately **2000 mL (68 US fl oz)**.

5. Install the combination breather and oil fill plug **(2)** in the oil fill hole.
6. Install the oil level check plug **(1)** in the oil level check plug hole on the rear of the lower-half reversing swivel gearbox.

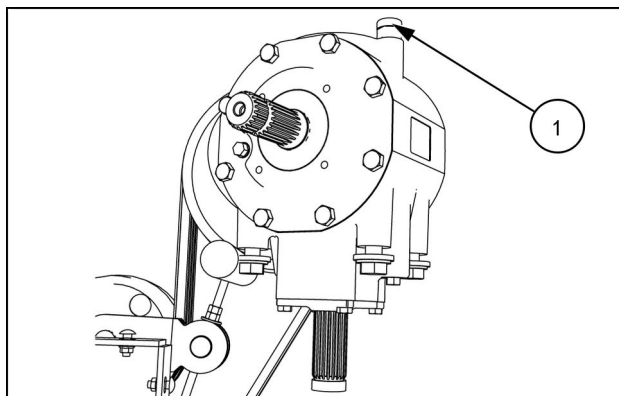


NHIL13HT00520AA 2

Bevel gearbox oil level – Check

Maintain the oil level using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

Use the combination gearbox plug and dipstick **(1)** to check the oil level.



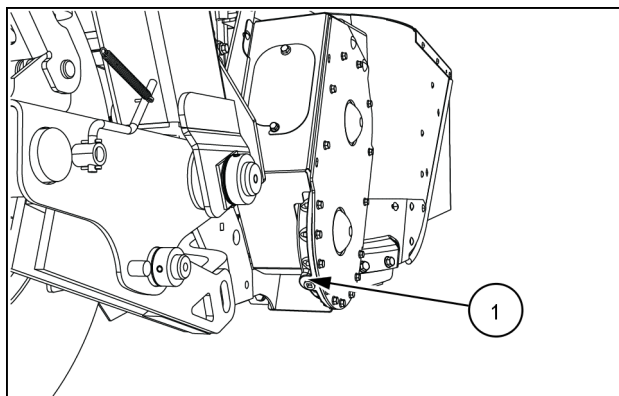
NHIL13HT00507AA 1

Conditioner drive gearbox oil level – Check

Maintain the oil level using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

NOTICE: Always clean the check plug, the fill plug, and the surrounding area before you remove either of the plugs to service the gearbox oil level.

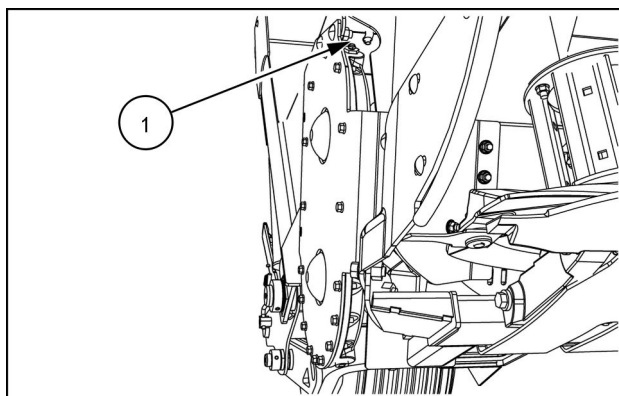
The conditioner drive gearbox oil level must be level with the bottom threads of the check plug opening **(1)** when you remove the check plug. The check plug is on the rear side of the gearbox.



NHIL13HT00511AA 1

Add oil to the conditioner drive gearbox oil level as follows:

1. On the front side of the gearbox, remove the fill plug **(1)**
2. Insert a funnel into the fill hole.
3. Add the appropriate amount of gearbox oil to make the oil level to the bottom threads of the check plug hole.



NHIL13HT00510AA 2

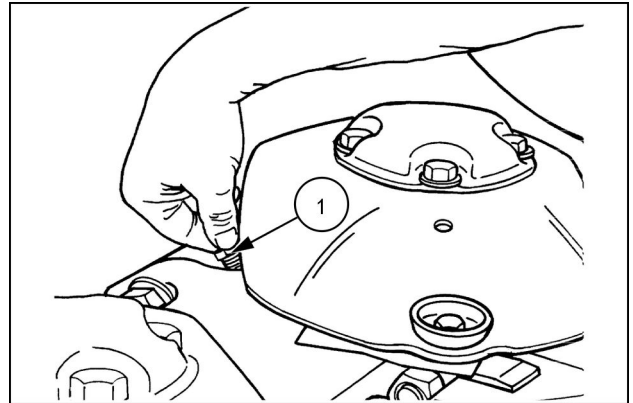
Cutterbar module oil level – Check

Maintain the oil level using **TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90** gear oil or **CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90** (synthetic).

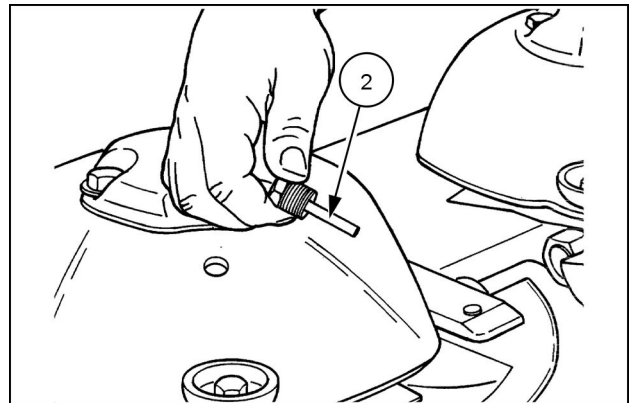
You must check each of the cutterbar modules oil every 50 hours.

1. Position the machine on a level surface.
2. Retract the tilt cylinder to position the cutterbar at minimum tilt.
3. Remove the dipstick **(1)** and wipe it clean.
4. Thread the dipstick in until it is finger-tight.
5. Remove the dipstick and observe the oil level.

NOTE: The oil level is correct when it is anywhere within the marked area at the end **(2)** of the dipstick.



A3662-19N 1



A3662-20N 2

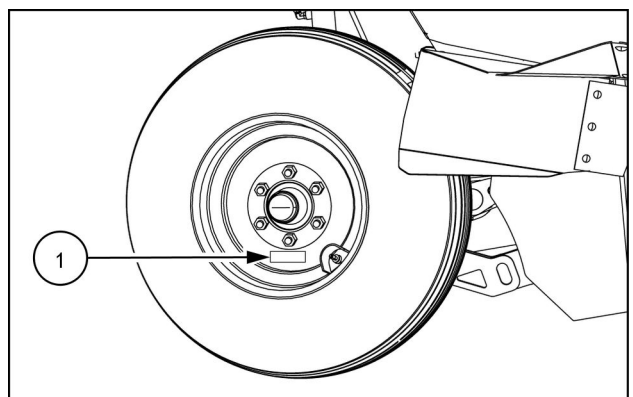
Wheels and tires – Check

NOTICE: You must check the torque of the wheel lug bolts after the first 2 hours of operation, after the first 10 hours of operation, and every 50 hours of operation thereafter. You must also check the torque of the wheel lug bolts any time that you remove and install a wheel.

The disc mower-conditioner requires 12.5 x 15, eight-ply tubeless agricultural tires.

NOTICE: Do not substitute a tire of a different size. A substitute tire size may compromise the load-carrying capacity.

1. Check and inflate the tires to **248 kPa (36 psi)**.
2. Check the torque of the wheel lug bolts.
3. Perform a follow-up check of the wheel bolt torque after every 50 hours of operation.
 - Wheel lug bolt torque specification decal **(1)** – **203 N·m (150 lb ft)**
 - Limit highway transport speeds to **32 km/h (20 mph)** to prevent tire failures.



NHIL16HT00001AA 1

Every 300 hours or yearly

Wheel bearings – Grease (repack)

See “Wheel bearings – Grease (repack)” **(6-22)**.

Swivel hitch gearbox – Change fluid

See “Swivel hitch gearbox – Change fluid” **(6-23)**.

Reversing swivel gearbox – Change fluid

See “Reversing swivel gearbox – Change fluid” **6-25**.

Bevel gearbox – Change fluid

See “Header drive gearbox – Change fluid” **(6-27)**.

Conditioner drive gearbox – Change fluid

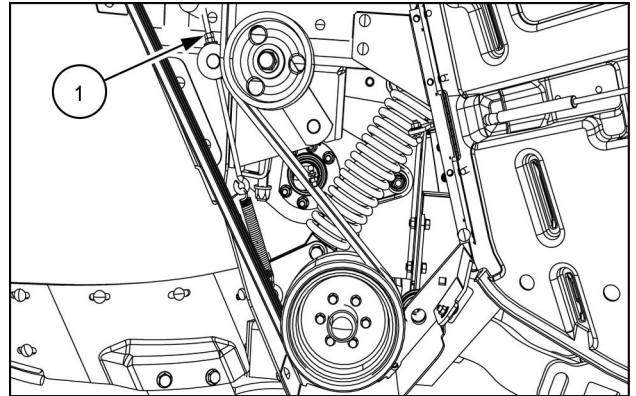
See “Conditioning roll drive gearbox – Change fluid” **(6-27)**.

Cutterbar module – Change fluid

See “Cutterbar module – Change fluid” **(6-28)**.

As required**Conditioner drive belt – Replace**

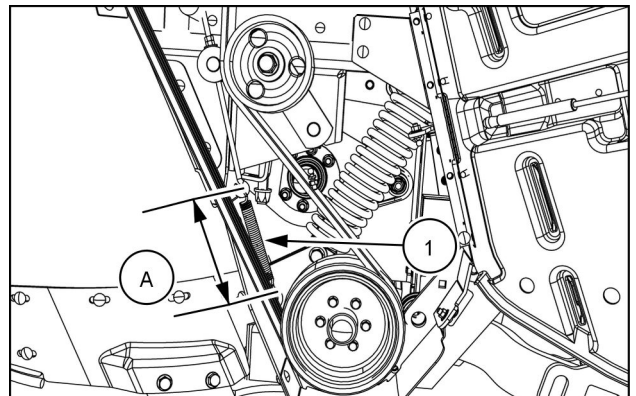
1. Remove the tension on the belt by loosening the jam nut and adjusting nut (1) on the spring tension rod until the belt can be removed from the upper sheave.
2. Slide the belt off between the sheaves.



NHIL13HT00414AA 1

3. Install the new belt onto the sheaves, and tighten nuts on spring tension rod to adjust spring (1) to a length of **209 mm (8.25 in) (A)** from inside hook to inside hook.

NOTE: Roll conditioning unit shown. Flail conditioning drive belt replacement uses the same procedure.



NHIL13HT00414AA 2

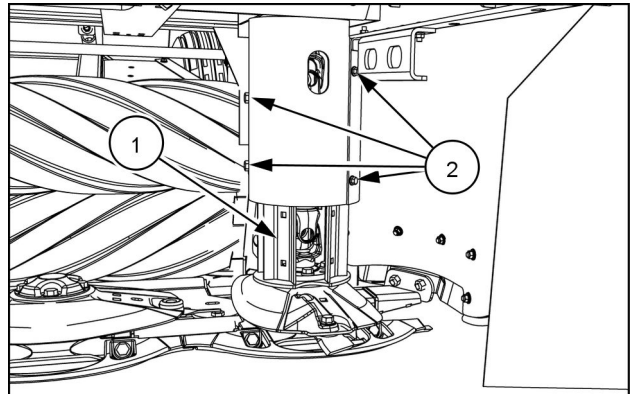
Cutterbar discs – Check

Check the discs for damage and wear each time that you replace or turn the disc knives. Replace any discs that show damage.

NOTICE: Do not make weld repairs to the discs, as this will affect disc strength and balance.

To remove discs at the Power Take-Off (PTO) drive locations:

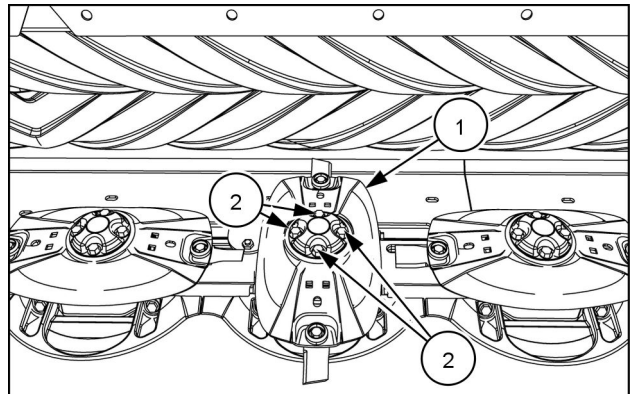
1. Remove the nuts and bolts at (2) to detach the shield halves.
2. Remove the PTO and tower (1).



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When the leading edge (1) of the disc wears thin, you can install the disc on an opposite-rotating module to utilize the second face.

1. Remove the bolts at (2) and remove the discs.



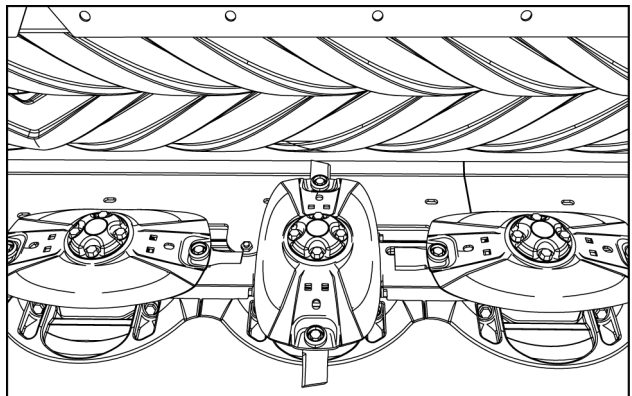
NHIL13HT00415AA 2

2. Install the new or rotated discs at right angles to each other as shown.
3. Be sure you install the correct hardware with the tower and PTO.

NOTICE: Use of incorrect disc retaining hardware may cause cutterbar lock-up and potential damage, or may prevent the proper retention of the discs.

4. Tighten the retaining bolts to **115 N·m (85 lb ft)**.

NOTICE: Do not overtighten the hardware, or the bolts may fail.



NHIL13HT00415AA 3

ShockPRO™ hubs – Replace

⚠ WARNING

Avoid injury!

Shut off the engine, remove the key, and make sure all motion is stopped before servicing the machine.
Failure to comply could result in death or serious injury.

W1128A

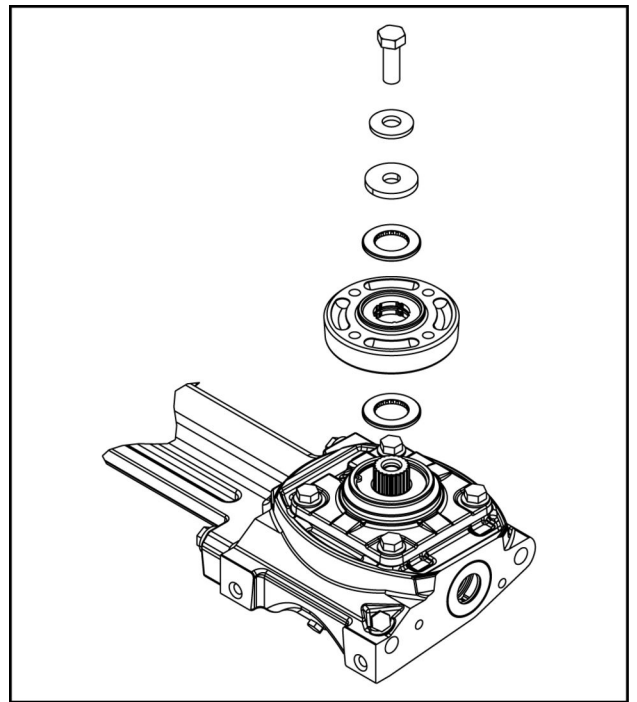
The **ShockPRO™** hubs provide shock protection to the individual **MowMax™ II** cutterbar modules upon contact with large obstacles or jamming of bent knives.

The **ShockPRO™** hub has a reduced number of splines, which will shear before the gear teeth in the module fail.

NOTE: The Power Take-Off (PTO)-driven discs do not use **ShockPRO™** hubs.

Detecting a sheared ShockPRO™ hub

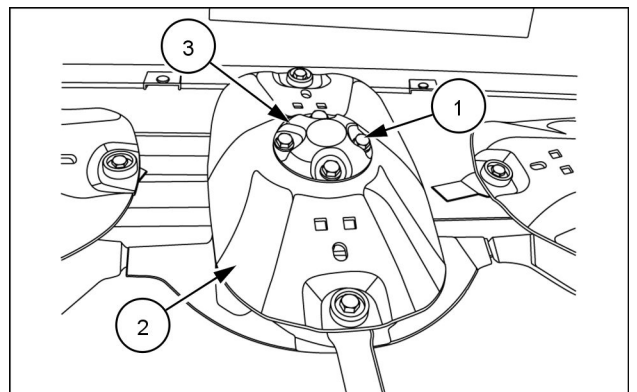
It should be obvious if a hub has sheared because the disc will be mistimed, causing knives to tick or the cut quality may become worse. Excess wobble or 'rocking' of a disc may indicate that the hub has sheared and/or that the center bolt is loose. It could also indicate a failed top cap bearing.



76106813 1

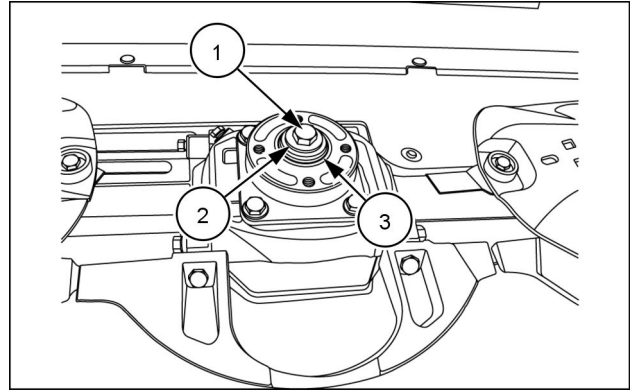
ShockPRO™ hub replacement

1. Remove the four bolts (1) from the disc.
2. Remove the disc (2) and the bolt cover (3).



93107687 2

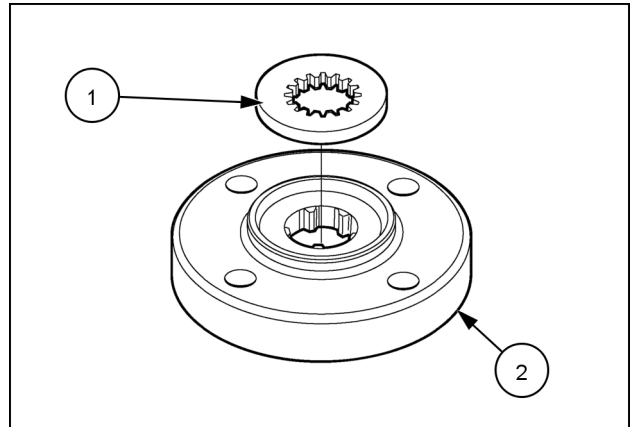
3. Remove the center bolt (1), the hardened washer (2), and the conical washer (3).



93107688 3

4. Remove the splined washer (1) and the **ShockPRO™** hub (2) together from the disc module.
5. Clean all of the metal spline fragments from the gear shaft.
6. Wipe the entire area clean of metal fines.

NOTICE: You must clean any metal fragments and fines from the top cap bearing and the lower splined washer to get an even clamp on the mating surfaces. Uneven clamping could crack the splined washer.



56064436 4

7. Install the bottom splined washer (6) (if removed).
8. Install the new **ShockPRO™** hub (5) on the disc module (7).

NOTE: The disc hub and the top cap shaft splines are randomly cut, with no index marks. You must time the shock hub with the rest of the cutterbar such that the discs will be 90° apart.

9. Apply a thin coating of **NEW HOLLAND AMBRA HI TEMP EP GREASE** to the seal lip and surface on the disc hub.
10. Time the **ShockPRO™** hub with the rest of the **Mow-Max™ II** cutterbar such that the discs will be 90° apart.
11. Slide the disc hub onto the top cap shaft. If the disc hub is not perfectly timed to the adjacent discs, remove the disc hub, rotate it 90° and install it. Continue to do this until the disc hub is properly timed. One of the four positions will provide correct timing.
12. Install the splined washer (4).

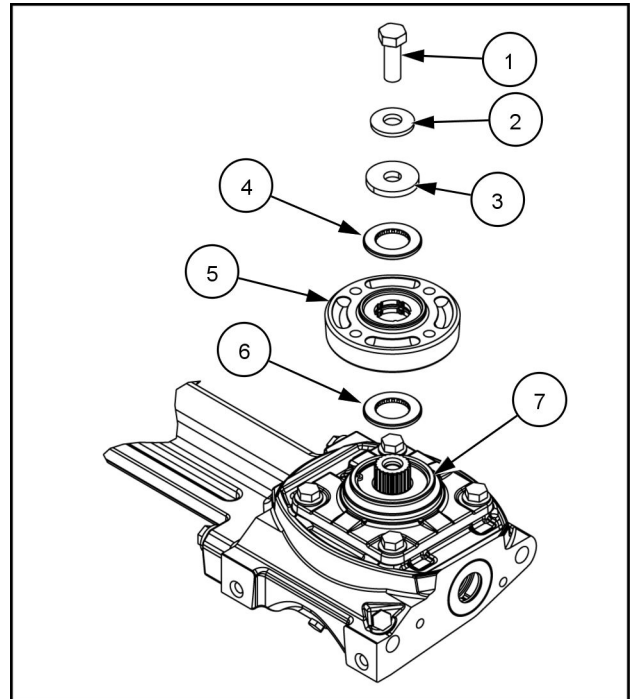
NOTE: If the splined washer (4) is damaged, replace it with a new splined washer.

13. Install the new top center bolt (1), the new conical washer (2), and the new hardened washer (3). Apply oil to the threads and under the head of the new center bolt.
14. Torque the center bolt to **244 N·m (180 lb ft)**.

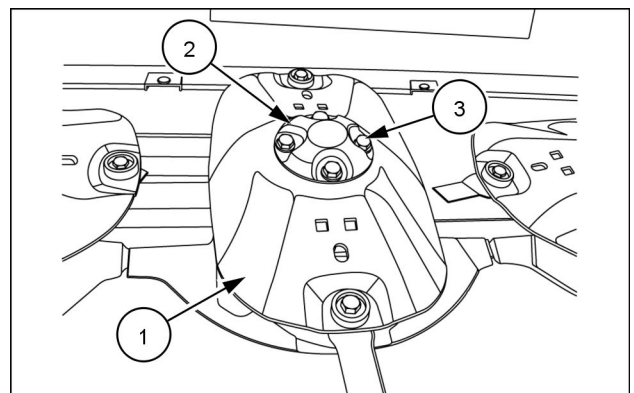
NOTE: When you install the conical washer, make sure that the cupped side faces down.

NOTICE: DO NOT over-torque or under-torque the center bolt. The bearing life may be compromised if the center bolt is over-torqued. DO NOT use an impact wrench to torque the top center bolt. Only hand torque the center bolt.

15. Install the disc (1) and the bolt cover (2) with the four bolts (3).
16. Torque the bolts to **113 N·m (83 lb ft)**.



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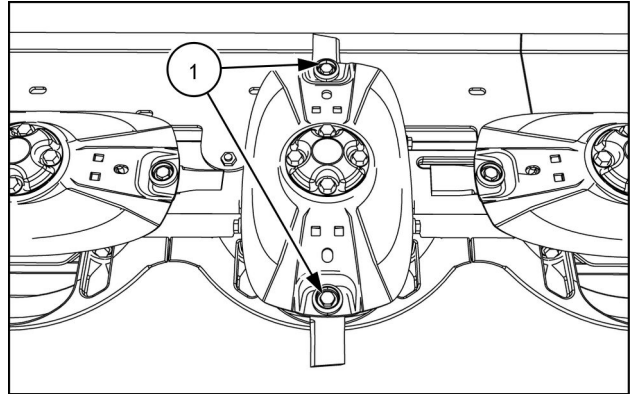
93107687 6

Cutterbar knives – Replace

NOTICE: Inspect the cutterbar for leaks or other necessary repairs whenever you perform service work. If you find a leak, repair it immediately to prevent possible future failures.

NOTICE: Always replace both knives on a disc to maintain balance. Do not intermix old and new knives on a disc.

1. Remove the dirt around the knife bolt (1).



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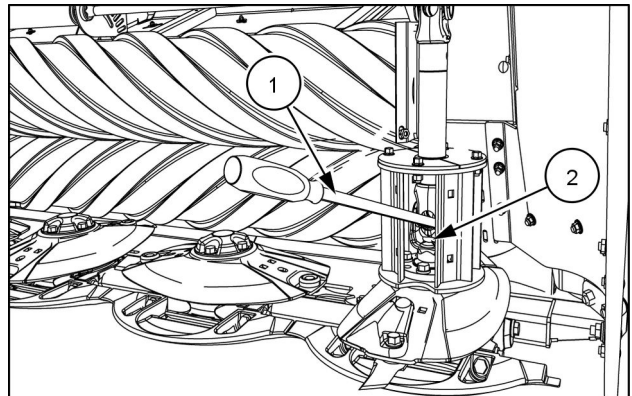
2. Install a bar (1) through a drive tower (2) to block the discs in place.

NOTE: Machine with roll conditioner shown.

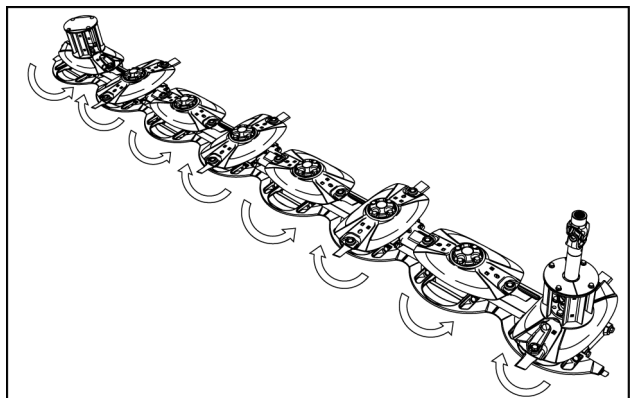
3. Remove the bolt with a socket. If necessary, hold the nut in place from the bottom with your hand to prevent rotation.

NOTE: If you use an impact wrench, use a bar to hold the nut in place, not your hand.

4. Remove the knife and the nut from under the disc after you remove the bolt.
5. You can turn knives over to use the opposite cutting edge when they become dull or nicked. All knives are angled. This manual refers to knives as either clockwise or counterclockwise to indicate the direction they must turn to cut properly.
6. The leading edge of the knives must be lower than the rear edge. On the disc mower-conditioner, the cutterbar discs rotate in opposite directions (counter-rotate) except the outermost pair on each side of the **4.9 m (16 ft)** unit, which rotate in the same direction (co-rotate). Refer to the accompanying drawing as to which way the discs turn.

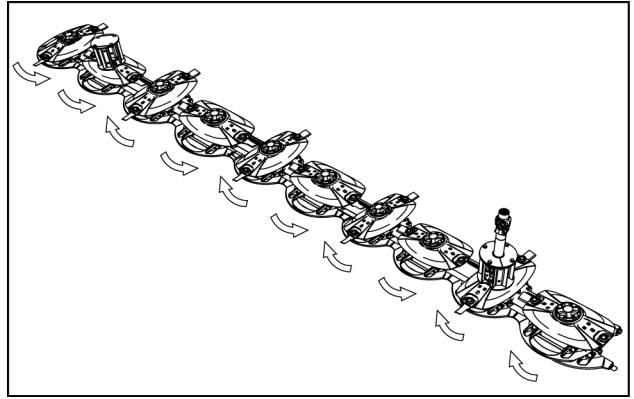


NHIL13HT00406AA 2



NHIL13HT00419AA 3

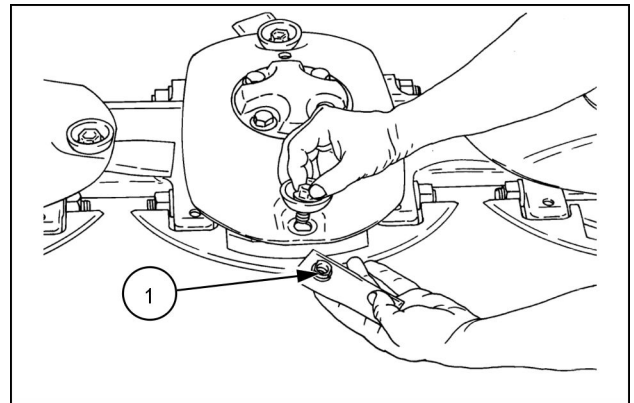
NOTE: The 4.9 m (16 ft) unit has co-rotating discs at the ends.



NHIL13HT00515AB 4

7. Install the nut through the knife and insert the nut (1) into the bottom of the discs so that it aligns with the slot in the disc.
8. Reinstall the knife bolt and tighten it to **137 N·m (101 lb ft)**.

NOTE: After you install all of the knives, turn the cutterbar by hand and check to make sure that all knives are in the proper orientation and that there is no interference.



19982124N 5

Quick-change knives – Replace

Machines that have the optional **QuickMax™** quick-change knife-change system can use the quick-change tool **(1)** to easily replace worn or damaged knives on the machine. You may use any style knife with this quick-change knife feature. The tool mounts on the left-hand side of the machine for storage.

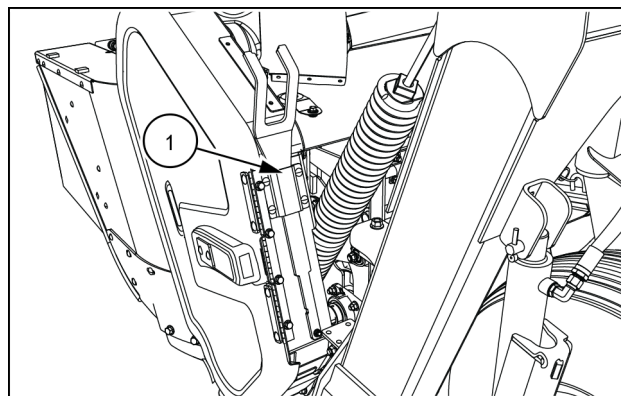
NOTICE: Inspect the cutterbar for leaks or other necessary repairs whenever you perform any service work. If you find a leak, repair it immediately to prevent possible future failures.

NOTICE: Always replace both knives on a disc to maintain balance. Do not intermix old and new knives on a disc.

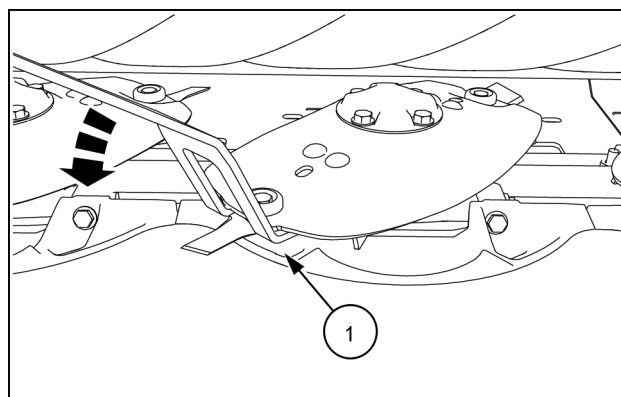
NOTICE: Do not use rock knives with the quick change knife system. The curve on the knife can cause excess load on the spring plates.

1. Rotate the cutterbar by hand until the disc lines up with the indentation **(1)** in the rock guard as shown, and insert the prongs of the quick-change knife tool between the disc shell and the spring plate.

NOTE: This disc orientation allows you to change half of the knives from a single position. To access the other half of the knives, rotate the cutterbar an additional **180°**.



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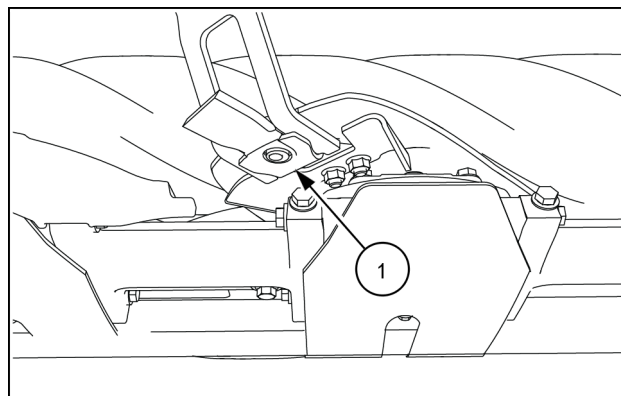


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2. Pry down on the spring plate **(1)** with the quick-change knife tool.

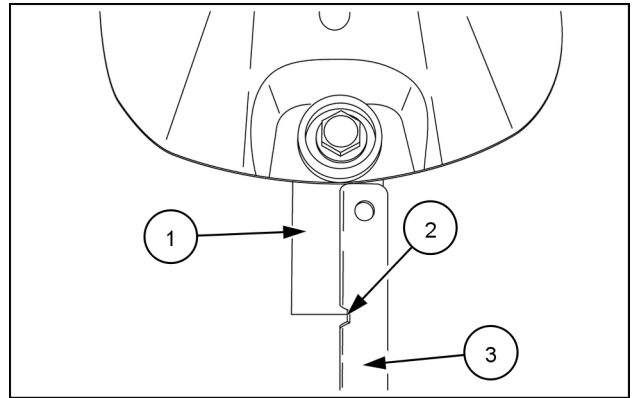
NOTE: For clarity, the rock guard is not shown in this image.

3. Remove the old knife from the disc.
4. Insert a new knife into place on the cutterbar while you apply a downward pressure with the quick-change knife tool. Once the knife is in place, release pressure on the quick-change knife tool and the spring plate will snap back into position.
5. Verify that the knife is secure on the cutterbar.

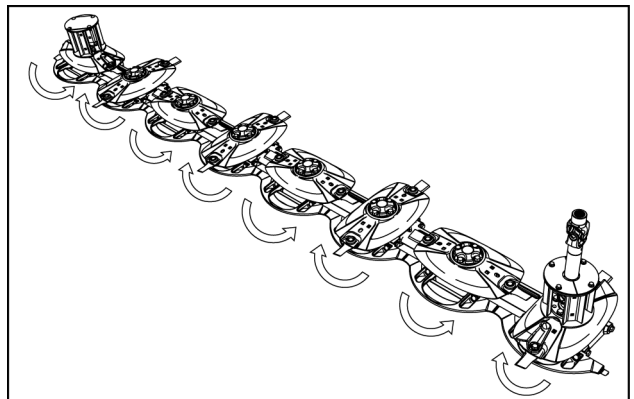


NHVM14HT00889AA 3

6. Check the wear on the knife nut (1) with the handle of the quick-change knife tool (2). Place the end of the handle of the quick-change knife tool (2) against the edge of the disc shell (3) so that you can see where the outer edge of the knife (4) corresponds to the notch in the handle of the quick-change knife tool.
7. Pull out and push in on the knife (1). The end of the knife must be within the notch (2) on the handle of the quick-change knife tool (3). If the knife is able to move outside of the notch, you must replace the knife nut. See "Quick-change knife hardware – Replace" (6-52) for more information.
8. You can turn knives over to use the opposite cutting edge when they become dull or nicked. All knives except rock knives are angled. This manual refers to angled knives as either "clockwise" or "counterclockwise" to indicate the direction they must turn to cut properly.
9. The leading edge of angled knives must be lower than the rear edge. On this machine, the cutterbar discs rotate in opposite directions (counter-rotate) except the outermost pair on each side of the 4.9 m (16 ft) unit, which rotate in the same direction (co-rotate). Refer to the accompanying figures as to which way the discs turn.

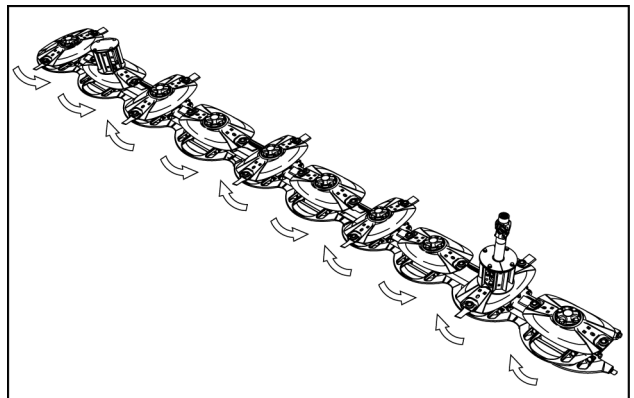


NHIL14HT00869AA 4



NHIL13HT00419AA 5

NOTE: The 4.9 m (16 ft) unit has co-rotating discs at the ends.



NHIL13HT00515AB 6

Quick-change knife hardware – Replace

In the **QuickMax™** quick-change system each knife attaches with two pieces of hardware:

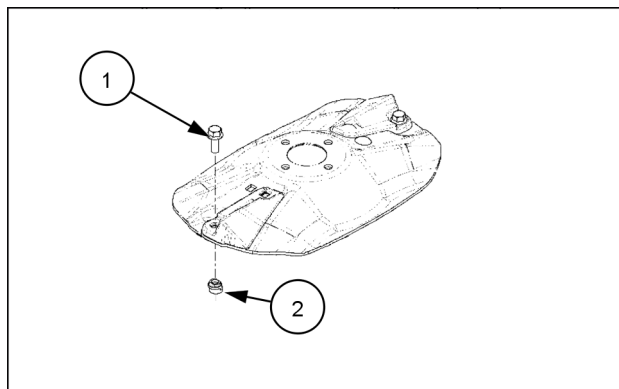
- Knife bolt – A self-locking bolt (See the NOTICE that follows).
- Knife nut – The knife nut has a special eccentric shape to support the quick-change knife feature.

NOTE: Both the knife bolt and the knife nut are available from your authorized NEW HOLLAND dealer.

NOTICE: When you install the knives, always use the special self-locking bolt, (also known as a “patch bolt”, because of the non-metallic plastic patch bonded to a specific portion of the threads to provide a self-locking feature). The manufacturer assembles the quick-change knives with **Nylok® Blue® Nylon Torq-Patch®** adhesive. You can reuse these bolts 4–5 times before you need to replace them. Replacement bolts are available from your NEW HOLLAND dealer.

1. Remove the existing knife bolt (1) and the disc knife.
2. Dispose of the worn knife nut (2).

NOTE: Make a note of the orientation of the knife when you remove it to ensure that you orient it correctly when you install it again.

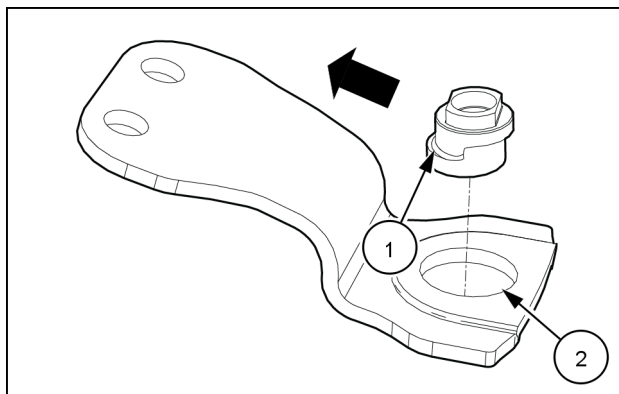


NHIL15HT00007AA 1

3. Orient the new knife nut so that the flange (1) faces upward.
4. Install the new knife nut through the spring plate, the disc knife, and the disc cover. You must orient the knife nut flange (1) on the top of the bottom half of the knife nut toward the center of the disc so that it fits into the similar oval-sized cutout on the disc cover.

NOTE: Make sure that you center the knife nut in the spring plate hole (2) when you install it.

5. Install the knife bolt (1) downward through the disc into the seated knife nut. If the disc module does not have a crop lifter, install the additional knife bolt shield that was previously taken off.
6. Tighten the knife bolt to **137 N·m (101 lb ft)**.

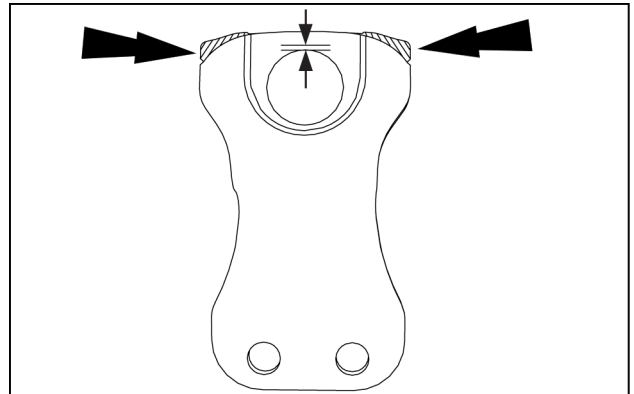


NHIL15HT00843AA 2

Quick-change knife spring plate – Replace

Change the spring plates to a disc that rotates in the opposite direction when either side of the spring plate has worn back to the notch in the side (past the shaded portion indicated in the diagram). Replace the plate when the thickness of the material around the large hole is thinner than **3 mm (0.12 in)**, or if the quick-change knife tool will no longer open the plate.

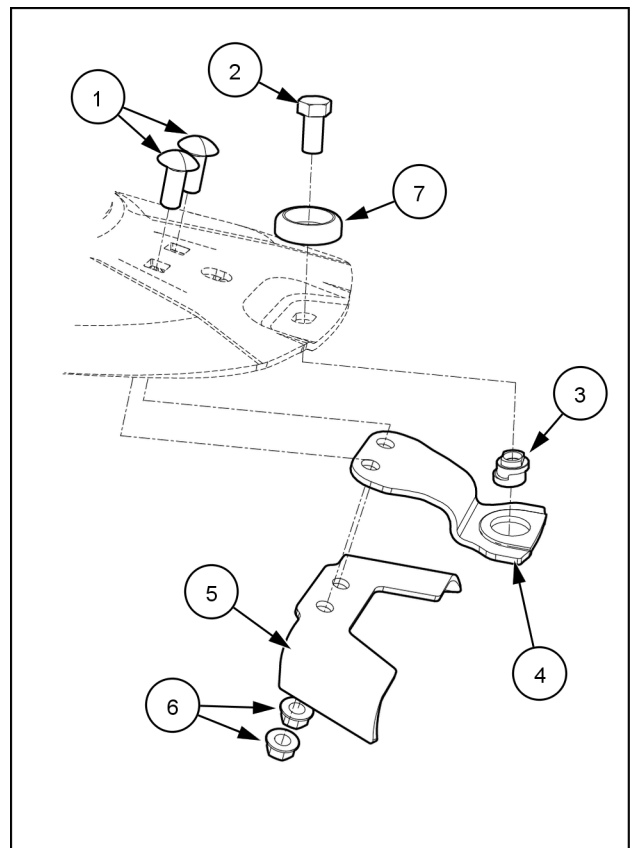
NOTE: On disc assemblies without lifters, you can swap the entire disc to an oppositely-rotating module with the quick-change hardware still attached. See the section “Swapping discs” below.



NHIL15HT00040AA 1

Spring plate replacement (without lifters)

1. Remove the carriage bolts (1), the flange nuts (6), and the knife bolt (2).
2. Remove the mud scraper (5), the spring plate (4), and the knife nut (3).
3. Install the knife bolt (2), the knife bolt shield (7), and the knife nut (3).
4. Install new carriage bolts (1), the new spring plate (4), the mud scraper (5), and new flange nuts (6).
5. Torque the knife bolt (2) to **137 N·m (101 lb ft)**
6. Torque the flange nuts (6) to **180 N·m (133 lb ft)**



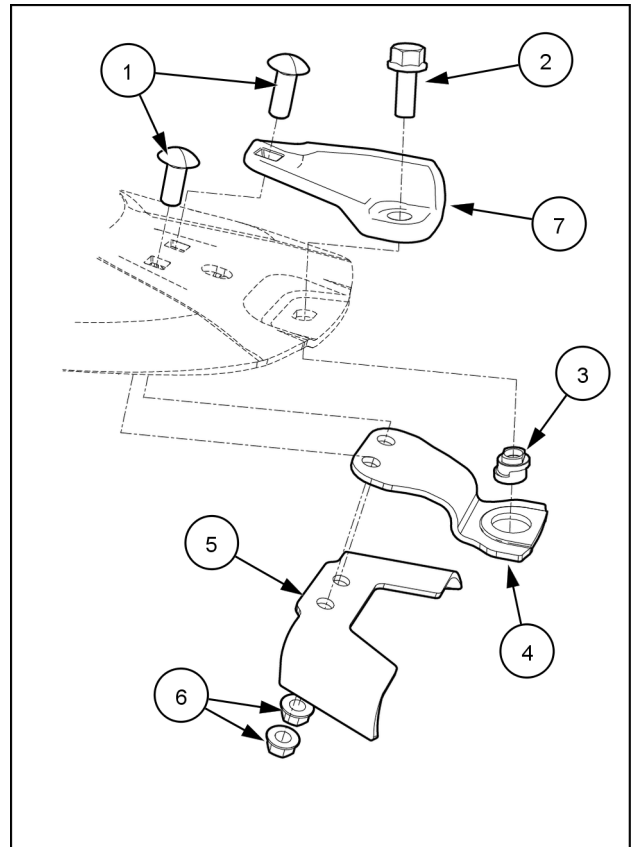
NHIL15HT00844BA 2

Spring plate replacement (with lifters)

NOTE: Lifters are only installed standard on the outside discs.

NOTICE: Replace both lifters on a disc to maintain balance. Do not make weld repairs to the lifters, as this will affect lifter strength and balance.

7. Remove the carriage bolts (1), the flange nuts (6), and the knife bolt (2).
8. Remove the crop lifter (7), the mud scraper (5), the spring plate (4), and the knife nut (3).
9. Install the knife bolt (2), the crop lifter (7), and the knife nut (3).
10. Install new carriage bolts (1), the new spring plate (4), the mud scraper (5), and new flange nuts (6).
11. Torque the knife bolt (2) to **137 N·m (101 lb ft)**
12. Torque the flange nuts (6) to **180 N·m (133 lb ft)**

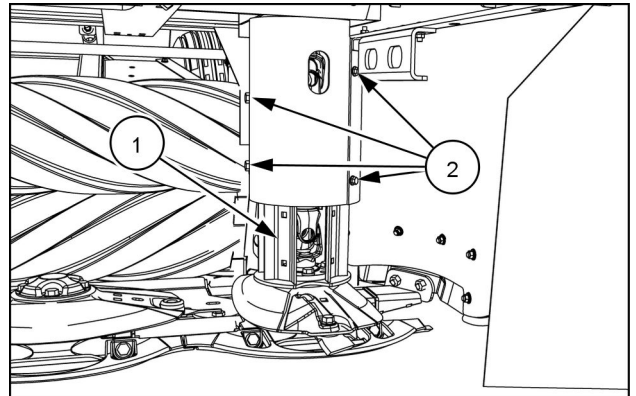


NHIL15HT00845BA 3

Swapping discs:

To remove disc assemblies (with the quick-change knife hardware still installed) at the Power Take-Off (PTO) drive locations:

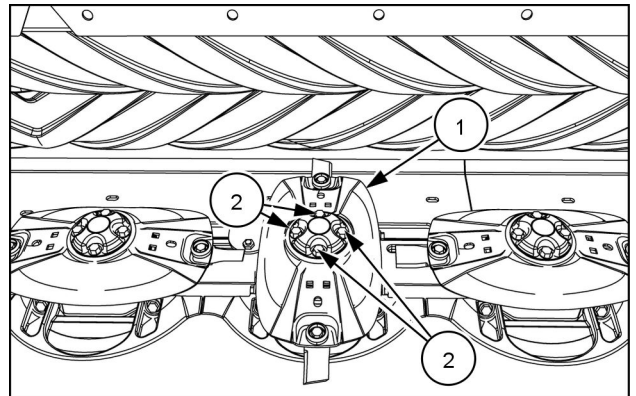
1. Remove the nuts and bolts (2) to detach the shield halves.
2. Remove the PTO shaft and the tower (1).



NHIL13HT00410AA 4

When the leading edge (1) of the disc wears thin, you can use the disc on an oppositely-rotating module to utilize the second face.

3. Remove the bolts (2) to remove the disc assemblies.



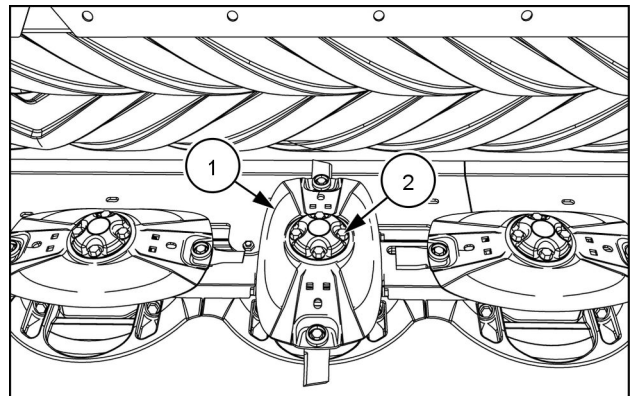
NHIL13HT00415AA 5

4. Install the disc assemblies (1) at right angles to each other, as shown.
5. Make sure that you install the correct hardware at the disc assemblies with the tower and the PTO drive.

NOTICE: Use of the incorrect disc-retaining hardware may cause potential damage, may lock the cutterbar up, or may prevent proper retention of the discs.

6. Tighten the disc cover bolts (2) to 115 N·m (85 lb ft).

NOTICE: Do not overtighten; failure of the retaining hardware may result.



NHIL13HT00415AA 6

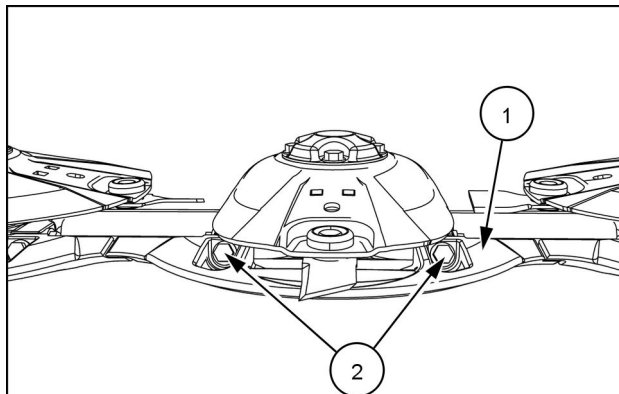
Rock guards – Replace

NOTICE: Replace a broken rock guard immediately, and replace any rock guard that is worn thin before the rock guard breaks.

1. Remove the bolts (2) and washers to remove the rock guard (1).
2. Install the new rock guard with new lock washers and chemical locking bolts.

NOTE: The bolts come with a special locking feature, often referred to as a “patch” bolt. Unlike the knife bolts which can be re-used, the rock guard patch bolts must be replaced. Replacement bolts and washers are available from your NEW HOLLAND dealer.

3. Torque the bolts (2) to **164 N·m (121 lb ft)**.



NHIL13HT00421AA 1

Skid shoes – Replace

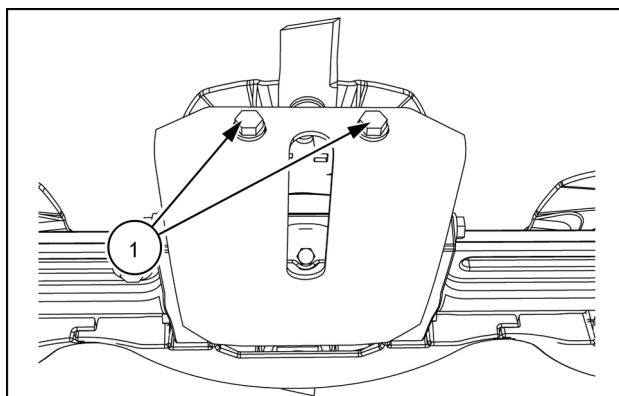
1. To remove a skid shoe, remove the bolts (1) that secure them to the cutterbar.
2. Insert the forward edge of the new skid shoe up into the rock guard and lift the rear up to align with the bolt hole.

NOTE: It may be easier to loosen the rock guard mounting bolts before you install the skid shoe.

NOTICE: Always replace broken skid shoes immediately.

NOTICE: Always replace skid shoes that are worn thin before they break.

3. Install bolt (1) and tighten to **115 N·m (85 lb ft)**.



NHIL13HT00512AA 1

Friction slip clutch – Burnish (resurface)

⚠ WARNING

Moving parts!

Disengage the Power Take-Off (PTO), turn off the engine, and remove the key. Wait for all movement to stop before you leave the operator's position. Never adjust, lubricate, clean, or remove a blockage of crop material when the engine is on.

Failure to comply could result in death or serious injury.

W0112B

The slip clutch (1) on the disc mower-conditioner is part of the secondary Power Take-Off (PTO) drive shaft, and mounts on the output shaft of the upper-half swivel hitch gearbox at the front of the tongue. The friction slip clutch is set to slip if an overload occurs during machine operation.

Burnish a new friction slip clutch or any friction slip clutch that has had no use for a period of 60 days to ensure the clutch friction discs are not bound together by rust.

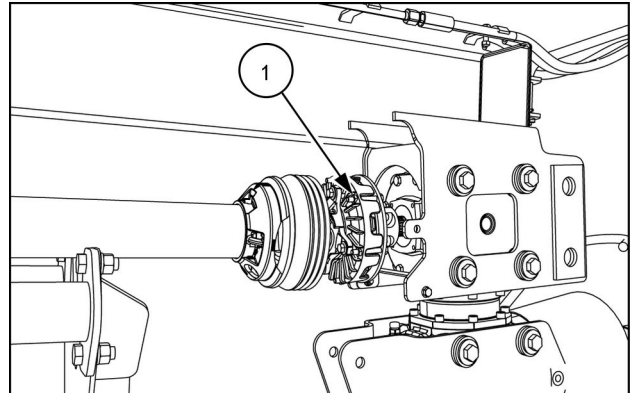
Burnish the friction slip clutch as follows:

1. Remove the PTO from the tractor.
2. Remove the PTO trumpet shield (1).
3. Loosen the six clutch bolts one-half of a turn at a time until the bolts are just loose, then retighten all of the bolts one-half turn.
4. Attach the PTO to the tractor.
5. Operate the tractor at one-third throttle, and engage the tractor PTO for a few seconds, or until the slip clutch visibly smokes, and then disengage the tractor PTO.
6. Turn the tractor off.
 - If the clutch does not slip, you must disassemble the clutch to unlock the friction discs.
 - Consult your authorized dealer for additional information about friction slip clutch service.

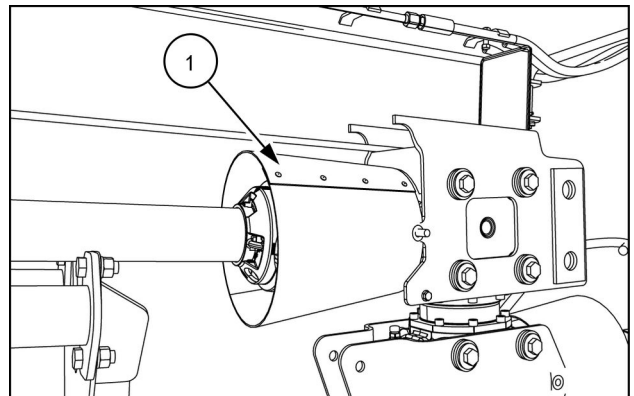
After you burnish the friction slip clutch, perform the following steps:

1. Tighten the cap screws one-half of a turn at a time until the compression plate (1) contacts the clutch housing (2).
2. Grease the fitting on the yoke with **NEW HOLLAND AMBRA HI TEMP EP GREASE**.
3. If there is an integral overrunning clutch, make sure that the clutch turns freely in one direction.
4. Reinstall the trumpet shield over the slip clutch and secure.

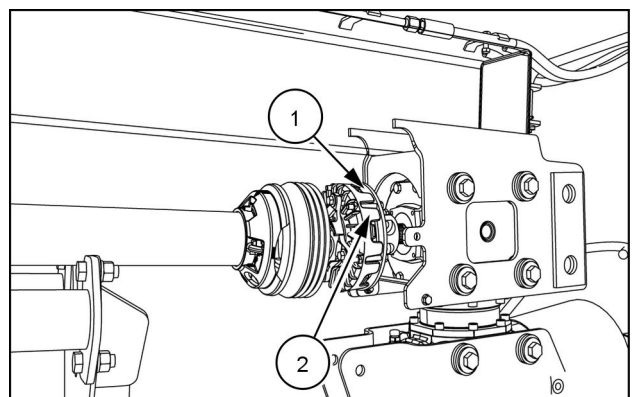
NOTICE: The slip clutch is factory-calibrated and is not adjustable.



NHIL13HT00422AA 1



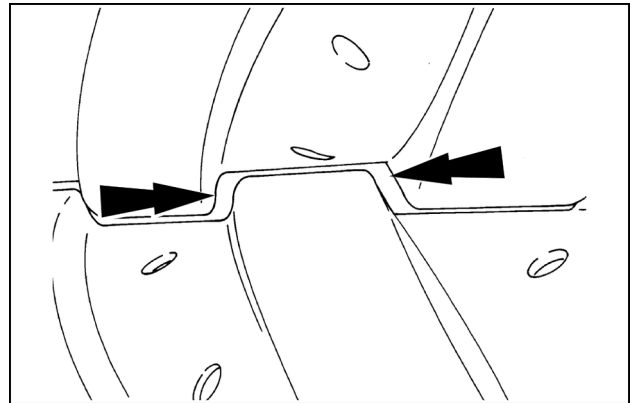
NHIL13HT00423AA 2



NHIL13HT00422AA 3

Conditioner rolls timing – Adjust

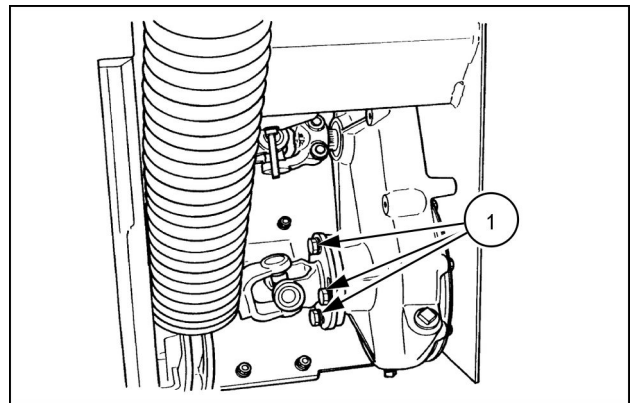
For proper operation, you must properly adjust the conditioner roll timing. When the machine is properly adjusted, the lug of one roll is centered between the two lugs of the opposite roll. The lugs must not touch.



1431-11-8-12N 1

To adjust the timing:

1. Remove the shielding to expose the lower roll drive Power Take-Off (PTO).
2. Loosen the **1/2 in** cap screws **(1)** on the lower roll drive yoke flange.
3. Center the lower roll lug in the top roll lug gap while you apply hand force on the top roll in the direction opposite the normal rotation.
4. Tighten the cap screws.
5. Apply reverse rotational force on both rolls to recheck the timing.
6. Reinstall all shielding.



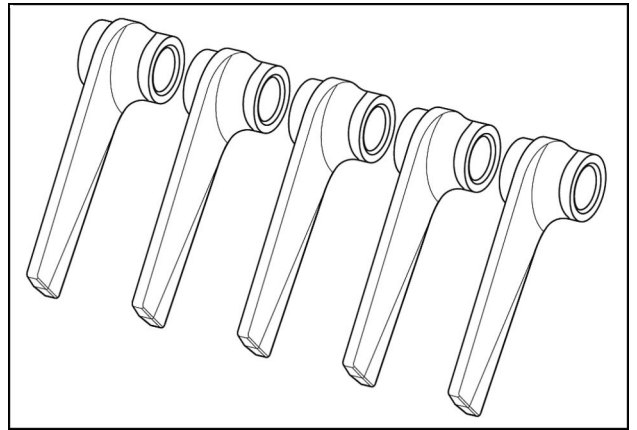
4835-07N 2

Flail – Replace

The flail conditioner consists of individual free-swinging cast flails.

Promptly replace any flails that have damage or are excessively worn.

Always replace the flail shaft if it becomes worn.

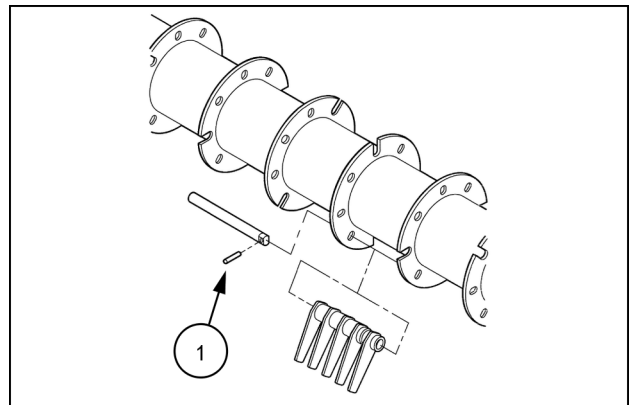


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The flail castings pivot freely on shafts that attach to the rotor with a roll pin at one side of the disc.

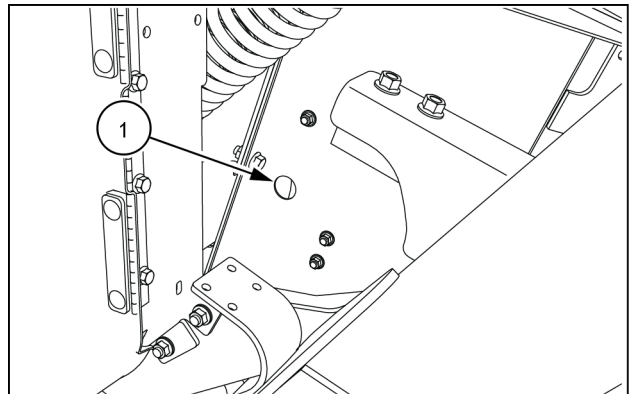
Replace any flails with damage as follows:

1. Use a punch to drive out the roll pin **(1)** from the shaft.
2. Slide the shaft to the side to remove the flails from the rotor.
3. Slide the shaft through the notch in the adjacent ring to remove it completely. For the flail shafts on each end, see the NOTE below.
4. Install the new flail(s) onto the shaft with the correct orientation as shown.
5. Install the roll pin into the shaft to secure the flail assembly.



50051122N 2

NOTE: End flail shafts slide through a hole **(1)** in the rear side sheets.



NHIL16HT00293AA 3

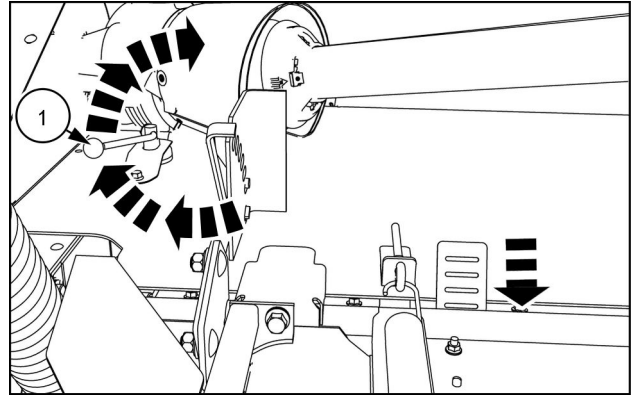
Flail hood liner – Replace

A bolt-in replaceable hood liner is standard on disc mower-conditioners that have flail conditioners to provide extended life and prevent wear to the hood.

Install a new replacement flail hood liner when the hood liner show signs of damage or excessive wear.

Flail hood liner – Remove

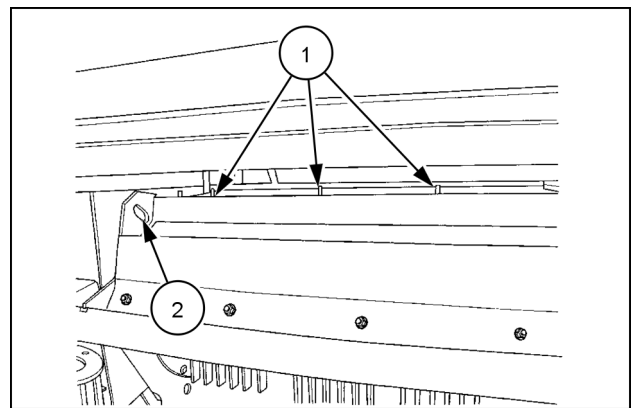
1. Turn the hood adjustment crank (1) clockwise to lower the hood to its lowest position.



NHIL13HT00502AA 1

2. Loosen the hood liner hardware (1), and then remove the hood liner sections selected for replacement.

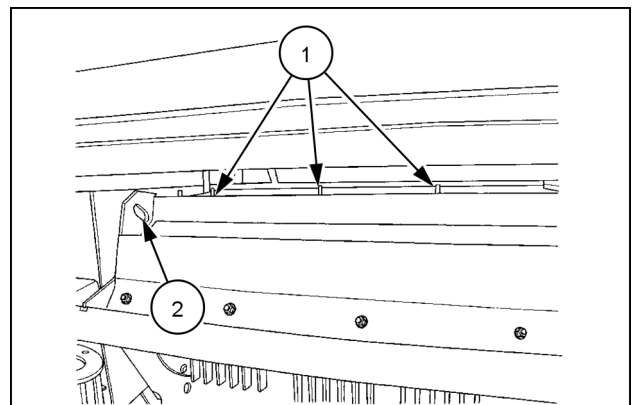
NOTE: You can remove the bolt and the down-stop spacer at location (2) to gain easier access to the hood liner hardware at location (1).



19985251NNN 2

Flail hood liner – Install

1. Position the new hood liner section under the hood in place of the old hood liner.
2. Secure the front and rear of each hood liner section to the hood using the 3/8 in x 3/4 in carriage bolts (1), washers, and flange nuts.
3. Tighten the flange nuts to standard torque specifications.
4. Install the down-stop spacer and bolt at the ends of the rotor hood (2) if they were removed.
5. Tighten the bolt to standard torque specifications.



19985251NNN 3

STORAGE

Parking the machine

⚠ DANGER

Crushing hazard!

The header will fall if it is not locked in the transport position or lowered to the ground before starting the bleed off procedure. Before you begin, raise the header and engage the lift locks OR lower the header. This procedure relieves all pressure from the header lift and tilt hydraulic system.

Failure to comply will result in death or serious injury.

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When you conclude daily operation of the machine:

1. Disengage the tractor Power Take-Off (PTO).
2. Park the machine on a level area.
3. Pivot the header to the "transport" position.
4. Lower the header to the ground or let the header rest on the header lift lock channels.
5. Remove the jack from the storage position and install it to support the tongue.
6. Remove the front PTO from the tractor PTO shaft.
7. Disconnect the hydraulic hoses and store them in the key hole slots on the tongue.

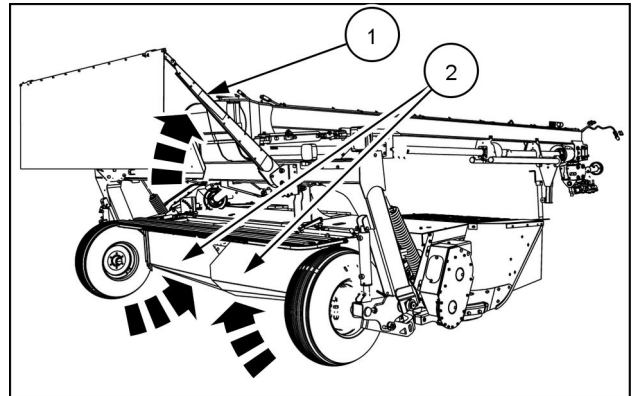
Storing the disc mower-conditioner

When preparing the disc mower-conditioner for storage:

1. Clean the disc mower-conditioner. Remove any buildup of debris and any wrapped crop from the cutterbar components.
2. Lubricate the disc mower-conditioner completely.
3. Drain the oil from all gearboxes and all modules, and refill with new, clean oil of the correct specification and to the correct level. Run the disc mower-conditioner for a few minutes.
4. Inspect for worn or broken parts. Replace with genuine factory parts.
5. Relieve the roll pressure (roll conditioning models only).
6. Remove the pressure from the conditioner drive belt.
7. Clean the cutterbar or rusted areas and touch up with factory paint. Spray cans are available from your authorized NEW HOLLAND dealer.
8. Store the machine where it is not exposed to the weather.
9. Park the machine with the transport locks engaged. If the cutterbar is lowered to the ground, place wood blocks under the cutterbar to prevent direct ground contact.
10. Check and adjust the tire pressure to **248 kPa (36 psi)**.

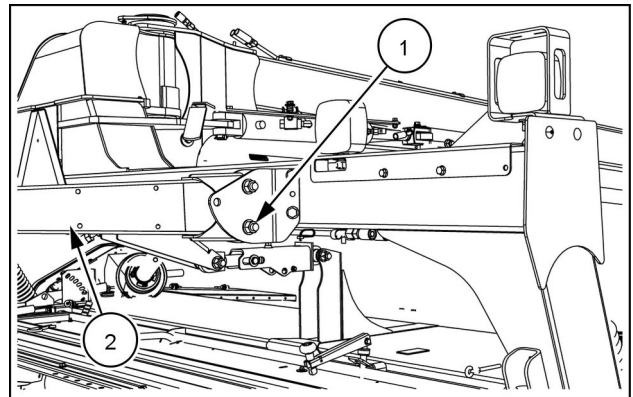
Flail conditioner unit storage – Shed storage

To conserve shed storage space in the off season, you can raise the flail curtain supports **(1)** and fold the windrow shields **(2)** inward.



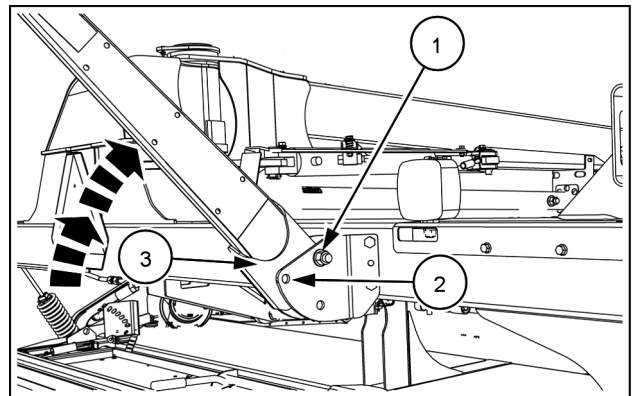
NHIL13HT00516AA 1

1. Remove the lower nut and bolt **(1)** on both the right-hand side support arm (shown) **(2)** and the left-hand side support arm.



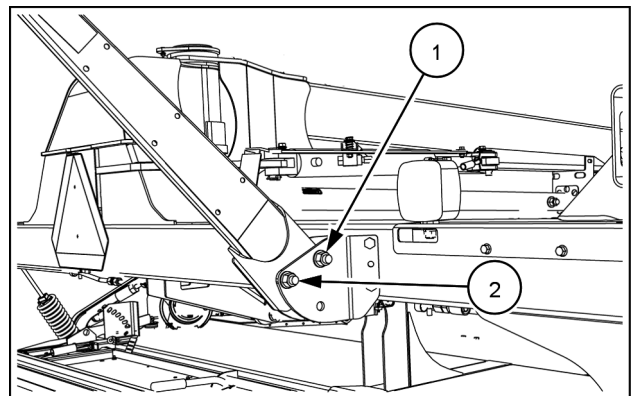
NHIL13HT00517AA 2

2. Loosen the nut **(1)** on the upper bolt of both the right-hand side support arm (shown) and the left-hand side support arm.
3. Rotate the curtain support arms **(3)** upward to align with indicated bolt hole **(2)**.



NHIL16HT00022AA 3

4. Install the bolt and nut at location **(2)** on both support arms, and then tighten the nuts **(1)** and **(2)**, on both support arms to standard torque specifications.



NHIL16HT00021AA 4

7 - TROUBLESHOOTING

SYMPTOM(S)

Troubleshooting

Problem	Possible Cause	Correction
Leaves damaged or stripped off stems.	Too much pressure on the rolls.	Reduce the pressure until the leaves are not damaged.
	Conditioning hood improperly adjusted.	Raise conditioning hood to provide less aggressive conditioning.
Leaving ragged or long stubble.	Ground speed too fast.	Reduce the ground speed.
	Dull, bent, or broken knives.	Turn over or replace the knives.
	Knives installed on wrong discs.	Install knives on correct discs.
	PTO speed too slow.	Maintain rpm on the tractor PTO. (Do not overspeed.)
	Cutting too high.	Remove high stubble kit, if installed. Increase header tilt.
	Header flotation too light.	Increase the header weight to keep the header in better ground contact.
	Header lift arm binding.	Remove, clean and lubricate header lift arm pin.
Excessive breakage of the knives.	Cutting too low in stony conditions.	Raise the cutting height with header tilt. Install high stubble kit.
	Stronger knives needed.	Install the rock knives (V - knives).
		Adjust the flotation springs to float the header with 45.4 kg (100 lb) force, per side.
	Ground speed too high in stony conditions.	Reduce ground speed.
Not cutting short enough in down material.	Ground speed too fast.	Reduce ground speed.
	Broken, bent, or dull knives.	Replace the knives or turn over the knives.
	Cutting height too high.	Lower the cutting height by tilting the header.
	Tractor PTO speed too slow.	Maintain tractor PTO rpm. (Do not overspeed.)
Strip of run-down, uncut material.	Ground speed too fast.	Use slower ground speed.
	Missing or dull knives.	Replace or turn over the knives.
	Material build up.	Clean off cutter bar. Tilt cutter bar back towards horizontal to reduce material buildup.
Forming poor or bunchy windrow.	Tractor PTO speed too slow.	Maintain rpm on the tractor PTO. (Do not overspeed.)
	Incorrect swath gate adjustment.	Adjust the swath gate to even discharge flow.
	Incorrect windrow shield adjustment.	Adjust the windrow shields.
Pulling material out of the ground when cutting back swath or tall material is leaning into the machine. Excessive power requirements.	Excessive roll pressure.	Reduce roll pressure or increase roll clearance.
	Tall crop pulled in to conditioner before being cut.	Install tall crop pushbar kit.
	Ground speed too slow.	Increase ground speed.

7 - TROUBLESHOOTING

Problem	Possible Cause	Correction
Soil buildup on front of cutter bar.	Very wet crop conditions.	Adjust flotation springs to reduce header flotation weight. Raise the cutting height with header tilt. Install high stubble kit. Allow ground and crop to dry more before cutting.
Crop stems not scuffed. (Flail conditioner model only)	Under conditioning.	Lower rotor hood or install dimpled hood liner.
Cutter bar does not turn easily by hand.	Buildup of dirt or twine under discs.	Remove disc and disc hub if necessary to clear debris.
Module oil level low.	Top cap seal failure from melted twine.	Replace top cap assembly.
	Seal failure on pinion shaft.	Replace seal.

8 - SPECIFICATIONS

General specifications

Model	Discbine® 313	Discbine® 316
Overall Width		
Transport position	4.04 m (13 ft 4 in)	5.05 m (16 ft 7 in)
Field position – Two-point hitch	6.5 m (21 ft 3 in)	7.8 m (25 ft 7 in)
Field position – Drawbar	6.0 m (19 ft 7 in)	7.3 m (23 ft 11 in)
Overall Length		
Transport position – Two-point hitch	8.4 m (27 ft 5 in)	9.7 m (32 ft 0 in)
Transport position – Drawbar	8.1 m (26 ft 5 in)	9.4 m (31 ft 0 in)
Field position – Two-point hitch	7.0 m (23 ft 0 in)	8.1 m (26 ft 7 in)
Field position – Drawbar	6.7 m (22 ft 0 in)	7.8 m (25 ft 7 in)
Height		
Transport position	2.26 m (7 ft 5 in)	2.26 m (7 ft 5 in)
Field position	2.01 m (6 ft 7 in)	2.01 m (6 ft 7 in)
Ground clearance		
Header fully raised	411 mm (16.2 in)	
Weight		
Shipping – Without hitch	2912 kg (6420 lb)	3104 kg (6843 lb)
Shipping – Two-point hitch and drawbar	2991 kg (6594 lb)	3184 kg (7020 lb)
Operating	2846 kg (6274 lb)	3039 kg (6700 lb)
Tractor requirements		
Power	67 kW (90 Hp) or greater with standard Category 2 or Category 3 ASAE/ASABE hitch and PTO locations.	75 kW (100 Hp) or greater with standard Category 2 or Category 3 ASAE/ASABE hitch and PTO locations.
Hydraulic circuits required	Two remote hydraulic circuits capable of 104 bar (1500 psi)	
Electrical	7-pin electrical connector for trailing and road transport lights	
Power Take-Off (PTO) shaft spline and size requirements	21-spline 1-3/8 in	
Input speed	1000 RPM only	
Drive line protection	Overrunning and friction slip clutch assembly at the front of the secondary PTO shaft	
Header		
Flotation	Vertical and radial, adjustable springs	
Windrow width	0.9 - 2.4 m (3.0 - 8.0 ft)	
Swath width – Roll conditioner units	3 m (10 ft)	3.7 m (12.0 ft)
Swath width – Flail conditioner units	3.4 m (11.0 ft)	4.0 m (13.0 ft)
Header lift	Hydraulic (master-slave system)	
Cutterbar		
Type	Modular	
Number of discs	8 counter-rotating	8 counter rotating, 2 co-rotating
Knives per disc	2	
Disc cutting diameter	618 mm (24.3 in)	
Disc drive method	PTO drive with a friction slip clutch to a bevel gearbox at the left-hand end of header, then to a vertical PTO shaft to the cutterbar	
Cutterbar shear protection	Frangible splines in disc drive hub	
Disc speed at 1000 RPM PTO speed	2250 RPM	

8 - SPECIFICATIONS

Cutterbar		
Knife tip speed at 1000 RPM PTO speed	261 km/h (162 mph)	
Cutting width	4.0 m (13 ft- 0 in)	4.95 m (16ft-3 in)
Cutting height	20 - 69 mm (0.79 - 2.7 in)	
Cutting height – High stubble shoes	79 - 140 mm (3.1 - 5.5 in)	
Cutting height – Biomass shoes	124 - 198 mm (4.9 - 7.8 in)	
Cutting height – Adjustable shoes	20 - 147.0 mm (0.79 - 5.8 in)	
Cutterbar angle	-2 ° to -10 °	

Conditioner	
Type – Roll conditioner	Chevron intermeshing molded rubber
	Chevron intermeshing steel rolls
Type – Flail conditioner	Flail rotor with 120 tapered flails
Drive – Roll conditioner	4HB V-shaped belt and enclosed gears
Drive – Flail conditioner	4HB V-shaped belt
Length	3175 mm (125 in)
Diameter – Roll conditioner	2 x 264 mm (10.38 in) rolls
Diameter – Flail conditioner	1 x 560 mm (22 in) flail rotor
Speed – Roll conditioner	Standard 750 RPM (640 RPM optional by swapping sheaves)
Speed – Flail conditioner	Standard 1042 RPM , Optional 752 RPM with the low-speed rotor kit (available from your authorized NEW HOLLAND dealer)
Conditioning roll tension adjustment – Roll conditioner	Single crank
Conditioner gap adjustment – Roll conditioner	Draw-bolt stop at each end
Conditioner gap adjustment – Flail conditioner	Single crank adjustment of rotor hood

Miscellaneous specifications	
Operating speed	0 - 14 km/h (0 - 9 mph)
Transport speed	32 km/h (20 mph) maximum
Capacity	3.1 Ha/hr (7.6 Ac/hr) at 10 km/h (6 mph) and 80 % field efficiency.
Tire	12.5L x 15 8PR, Tubeless agricultural rib implement tire
Tire pressure	248 kPa (36 psi)
Jack	2000 lb capacity side-wind
Tongue shift mechanism	Hydraulic

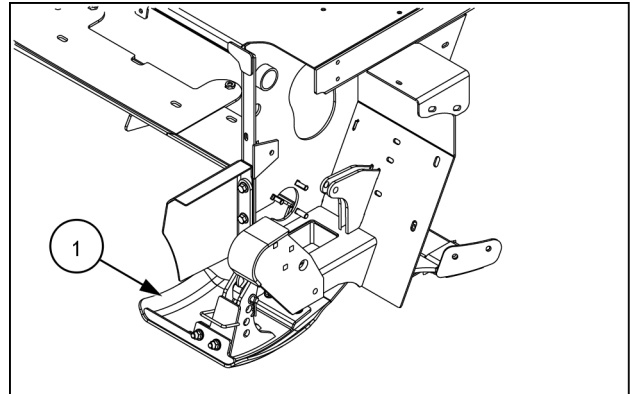
Specification – Consumables and capacities

Consumable product	Material specification	Use	Capacity
Grease lubricant			
NEW HOLLAND AMBRA HI TEMP EP GREASE	CNH Industrial: MAT3550 Performance: NLGI 2 , GC-LB	All grease fittings	As specified.
		Wheel bearings – Repack	Not specified; amount as required
Lubricating oils			
TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90 or CNH HYPOIDE SSL SYNTHETIC GEAR LUBE 75W-90 (synthetic)	CNH Industrial: MAT3511 Performance: API GL-5, SAE J2360 , MIL-PRF-2105E	Front lower-half swivel hitch gearbox	2000 mL (68 US fl oz)
		Front upper-half swivel hitch gearbox	1100 mL (37 US fl oz)
		Rear lower-half reversing swivel gearbox	2000 mL (68 US fl oz)
		Rear upper-half reversing swivel gearbox	1100 mL (37 US fl oz)
		Conditioner drive gearbox	800 mL (27 US fl oz)
		Bevel gearbox	710 mL (24 US fl oz)
		Cutterbar modules	340 mL (11 US fl oz) each

9 - ACCESSORIES

Adjustable skid shoes kit

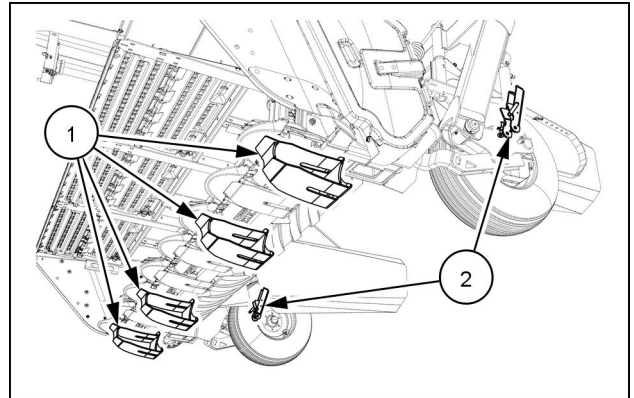
The adjustable skid shoes kit provides adjustable skid shoes **(1)** that allow for elevating the cutterbar above obstructions in the field or for obtaining a taller stubble height.



NHIL13RB03554AA 1

Cane and biomass harvesting kit

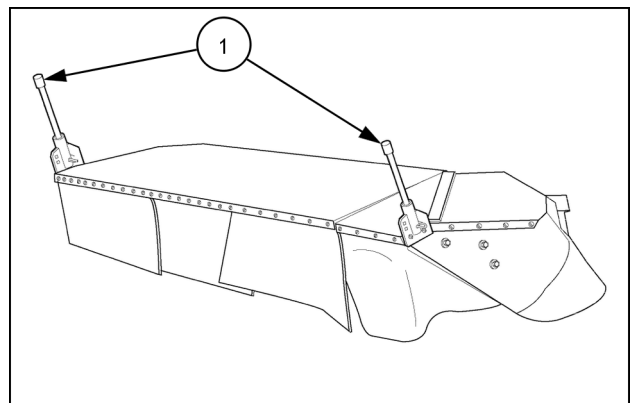
The biomass harvesting kit supplies skid shoes **(1)** and lift cylinder lockouts **(2)** to produce a stubble with a taller height to promote faster plant regrowth.



NHVM13HT00655AA 1

Corner marker kit

The corner marker kit consists of two flexible marker posts **(1)** that bolt onto the front corners of the header. These provide the operator with a clear view of the location of the front corners of the header during operation. The header markers also provide a mounting location for flags that may be used when transporting the disc header on public roads. Flags may be purchased locally.

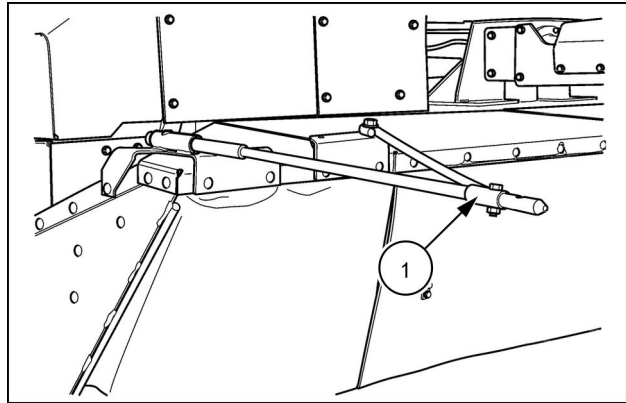


36082803N 1

Crop divider

The crop divider kit adds a crop divider on both sides of the header.

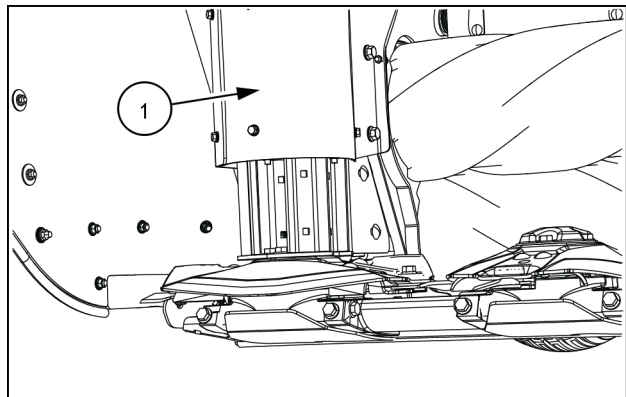
Crop dividers **(1)** deflect material toward the center of the header to ensure that the entire crop passes through the header.



10032251N 1

Right-hand crop guide kit

The right-hand crop guide kit **(1)** prevents crop buildup on the top of the drum on the right-hand side of the cutterbar. Crop buildup in this location can sometimes cause large clumps of crop material to periodically feed through the conditioner, which results in a lumpy windrow edge.



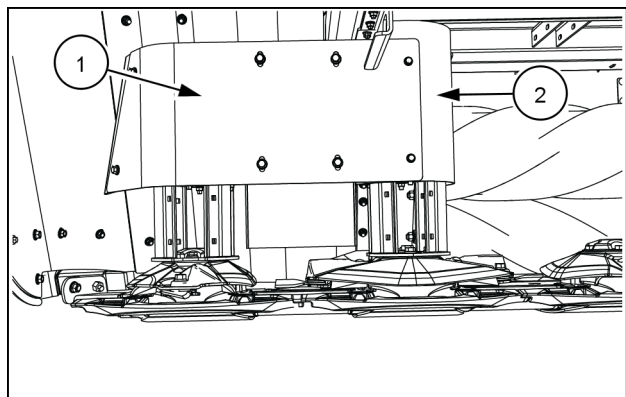
NHIL16HT00061AA 1

Crop guide extension kit

The crop guide extension kit **(1)** helps to feed crop from the outside discs into the conditioner. This kit is only available for **4.9 m (16 ft)** machines.

This kit includes parts to install on both the left-hand side and the right-hand side of the machine.

NOTE: The crop guide kit **(2)** must already be installed in order to install the crop guide extension kit.



NHIL16HT00061BA 1

Disc knives

Replacement disc knives

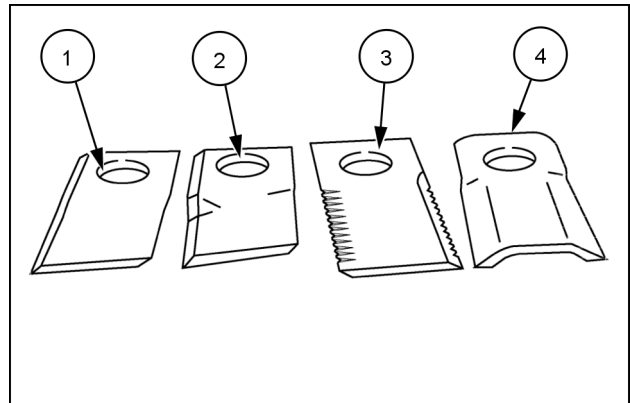
The disc header can be equipped with a choice of six different cutterbar knives, depending on crop conditions and soil types. All knives feature two cutting edges, are available from the parts department, and can be flipped for double the cutting life.

- **(2) 14 °** long smooth knives are suitable for normal cutting conditions and are standard on the mower conditioner.
- **(3) 14 °** long serrated knives offer the same advantages as the **14 °** long smooth knives, with extended wear in abrasive conditions.
- (Not shown) **18 °** long smooth knives are more effective in down crop conditions by providing more crop lift.
- (Not shown) **18 °** long serrated knives offer the same advantages in down crops as the **18 °** long smooth knives, with extended wear in abrasive conditions.
- **(1) 7 °** long smooth knives offer clean cutting with less ash content, and will reduce crop blow-down in light or short crops.

NOTE: 7 ° long smooth knives are also recommended for use with the quick change knife system in rocky / stony conditions.

- **(4) Rock knives** (long) are designed for durability in rocky/stony conditions.

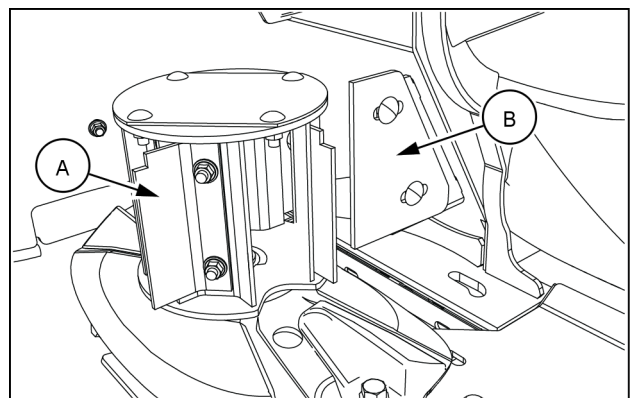
NOTICE: Do not use rock knives with the quick change knife system. The curve on the knife can cause excess load on the spring plates.



76075992N 1

Drum paddle kit

A drum paddle kit is available as an optional accessory through your authorized NEW HOLLAND dealer. The drum paddle kit adds paddles **(A)** to each cutterbar drum to improve crop flow toward the conditioner. The kit provides new narrow strippers **(B)** to replace the wide strippers that come standard on the machine.

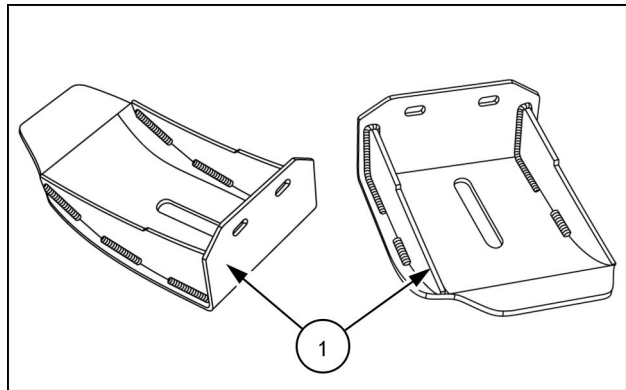


NHIL15HT00661AB 1

High stubble kit

The high stubble kit is intended to provide a higher cutting height for clipping pastures, or for crops where a higher stubble height is desirable. Cutting height is approximately **139.7 mm (5.5 in)** at 2 degrees cutter bar tilt to approximately **89 mm (3.5 in)** at 10 degrees cutter bar tilt.

The high stubble kit consists of eight high skid shoes **(1)**. All eight skid shoes should be installed to minimize shoe wear and provide proper flotation of the cutter bar.



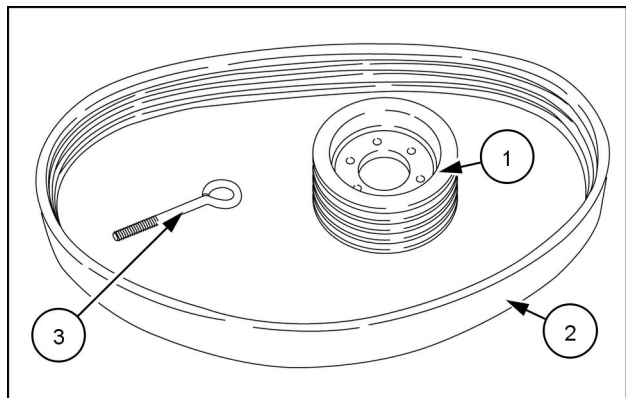
93107673 1

Low speed rotor kit

Low speed rotor kit - Flail conditioner model only

The low speed rotor kit is available for less aggressive conditioning. A larger sheave and a 4HB banded V-belt enable the rotor and flails to rotate at a slower rate of speed. The standard rotor speed is **1042 RPM**. The low speed rotor kit will decrease the rotor to **752 RPM**. The contents of the kit are shown.

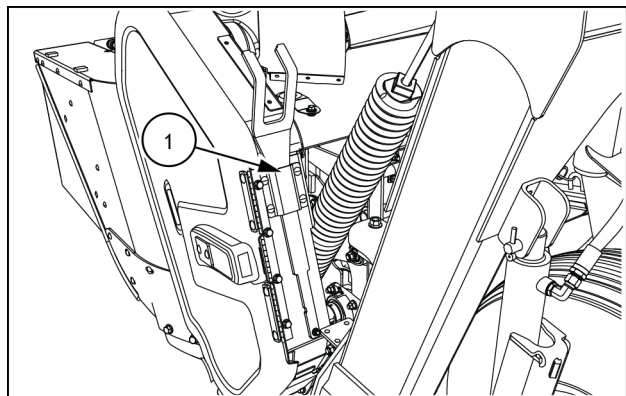
- (1)** Sheave
- (2)** HB banded belt
- (3)** Eye bolt



NHIL13HT00519AA 1

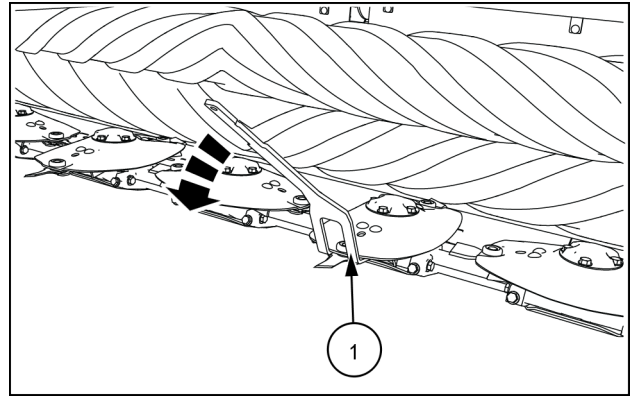
Quick-change knife kit

A quick-change knife kit is available as an optional accessory that allows you to quickly change the disc knives using an included tool **(1)**. No manual torquing of the knife bolts is necessary.



NHIL14HT00753AA 1

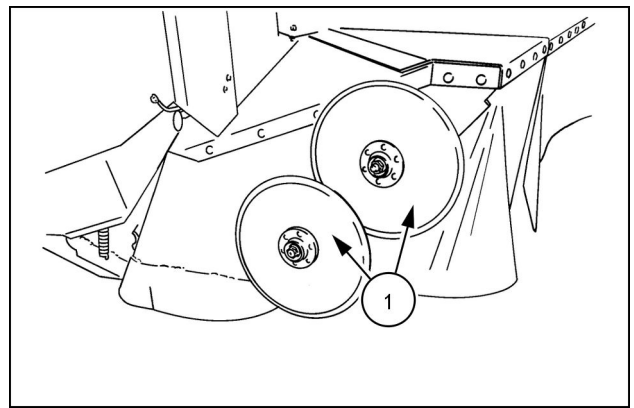
The tool inserts underneath the disc shell at **(1)** and is used to pry down on the spring plate to facilitate quick removal and installation of the knives. Machines equipped with the quick-change knife kit can use any standard NEW HOLLAND knife style, except rock knives.



NHIL14HT00754AA 2

Rolling crop dividers

The rolling crop divider kit **(1)** fits onto the outer shrouds of the header. The kit is designed to aid in crop feeding and to prevent the bulldozing of crop material. The rolling crop dividers allow tangled, matted crop, or loose crop material, (such as discharge from a combine), to roll under the shroud and then be cut by the cutterbar knives. The disc and mounting plates are available through service parts.

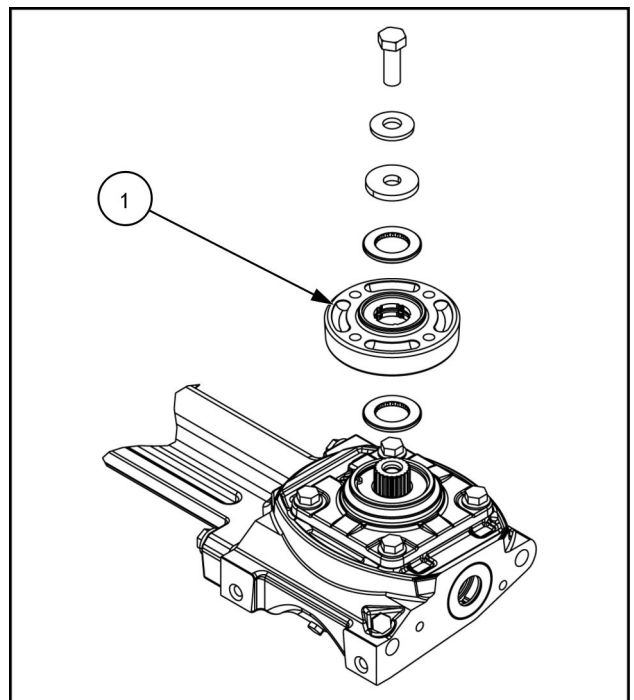


19995657N 1

ShockPRO™ hubs

ShockPRO™ hub repair kits are available from service parts.

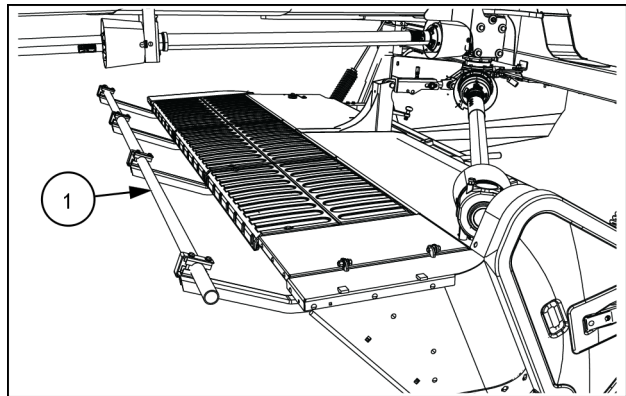
The kits allow you to quickly install a new **ShockPRO™** hub **(1)** onto a cutterbar module to replace a shear-damaged hub while in the field.



76106813 1

Tall crop pushbar kit

The tall crop pushbar kit is used for pushing tall crops forward to help with crop feeding.

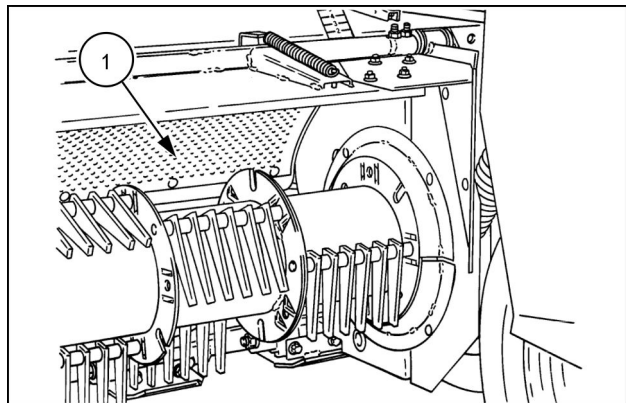


NHVM13HT00652AA 1

Textured hood liner kit

– Machines with flail conditioners only

The textured hood liner kit is available for more aggressive crop conditioning. You must remove the standard smooth hood liner **(1)** before you install the textured hood liner. This kit includes three textured hood liner sections and the appropriate hardware to install the liner sections.



19982130N 1

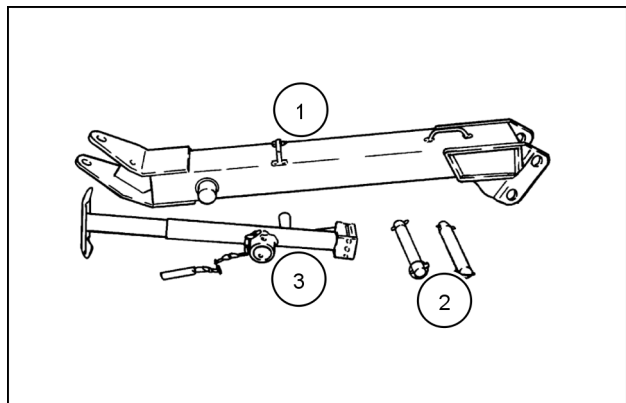
Tow hitch kit

A tow hitch is available for use with the disc mower-conditioner equipped with the swivel hitch tongue.

The tow hitch allows for towing of the swivel hitch equipped disc mower-conditioner with a tractor equipped with a standard drawbar.

The tow hitch **(1)** includes two clevis pins with linchpins **(2)**, a safety chain and attaching hardware (not shown), and a side wind-style jack **(3)**.

You can also use the tow hitch to move equipment around in a yard without having to hook the two-point hitch or drawbar hitch to the tractor.



97-1551N 1

10 - FORMS AND DECLARATIONS

Delivery report – Owner Copy

Delivery date:		
Owner's name:		
Address:		
Dealer's name:		
Address:		
Unit:	Model:	Product Identification Number (PIN):

Using the operator's manual as a guide, instruction was given as indicated by the check marked (✓) topics below:

- () Customer is familiar with the safety information and understands the safety signs, the safety precautions, and the safety practices.
- () Customer is shown the location of the Power Take-Off (PTO) Safety Booklet provided with the machine. You advise the customer to read and understand the content with regard to operations. The customer understands the PTO safety signs, the PTO safety precautions, the PTO safety practices such as the dangers of PTO entanglement, and the importance to disengage the PTO, shut off the tractor engine, and remove the key prior to any service or maintenance.
- () Customer is familiar with all safety shielding and understands the importance of all shielding being installed before operation.
- () Customer is familiar with grease lubrication points, and the lubrication schedule.
- () Customer is familiar with the maintenance chart schedule, areas, adjustments, and troubleshooting.
- () Customer is familiar with field adjustments for various crop conditions.
- () Customer is familiar with the controls, instruments, indicators, and machine tools.
- () Customer is familiar with the safe working operations of the machine.
- () Customer is familiar with the use of optional equipment and accessories installed.
- () Customer is familiar with preseason services.
- () Customer is familiar with end-of-season services.
- () Customer is familiar with the machine specifications.
- () Customer is familiar with available accessories and their application to his machine.
- () Customer is given guidance on the proper use of the operator's manual and understands the machine terminology used in the manual.
- () Customer is given the operator's manual.

Dealer representative's signature: _____

"I have been instructed in the operation, maintenance, and safety features of this machine as detailed in the operator's manual."

Owner's signature: _____

Delivery report – Dealer Copy

Delivery date: _____

Owner's name: _____

Address: _____

Dealer's name: _____

Address: _____

Unit: _____ Model: _____ Product Identification
Number (PIN): _____

Using the operator's manual as a guide, instruction was given as indicated by the check marked (✓) topics below:

- () Customer is familiar with the safety information and understands the safety signs, the safety precautions, and the safety practices.
- () Customer is shown the location of the Power Take-Off (PTO) Safety Booklet provided with the machine. You advise the customer to read and understand the content with regard to operations. The customer understands the PTO safety signs, the PTO safety precautions, the PTO safety practices such as the dangers of PTO entanglement, and the importance to disengage the PTO, shut off the tractor engine, and remove the key prior to any service or maintenance.
- () Customer is familiar with all safety shielding and understands the importance of all shielding being installed before operation.
- () Customer is familiar with grease lubrication points, and the lubrication schedule.
- () Customer is familiar with the maintenance chart schedule, areas, adjustments, and troubleshooting.
- () Customer is familiar with field adjustments for various crop conditions.
- () Customer is familiar with the controls, instruments, indicators, and machine tools.
- () Customer is familiar with the safe working operations of the machine.
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- () Customer is given the operator's manual.

Dealer representative's signature: _____

"I have been instructed in the operation, maintenance, and safety features of this machine as detailed in the operator's manual."

Owner's
signature: _____

First 50 hour service record – Owner copy

Check and perform each of the following maintenance items to complete the first 50 hour maintenance service:

- ☐ Inspect and tighten hardware.
- ☐ Check the drive belt tension on the conditioner.
- ☐ Grease the primary Power Take-Off (PTO) assembly.
- ☐ Grease the swivel hitch trunnion assembly.
- ☐ Grease the swivel hitch trunnion
- ☐ Grease the secondary PTO assembly.
- ☐ Grease the cross-header drive PTO shaft.
- ☐ Grease the Power Take-Off (PTO) overrunning and friction slip clutch.
- ☐ Grease the cutterbar drive shaft.
- ☐ Grease the conditioning roll drive shafts and bearings.
- ☐ Grease the tongue pivot pin.
- ☐ Grease the wheel arms and header lift arms.
- ☐ Grease the roll conditioner roll pressure adjustment crank (if equipped)
- ☐ Grease the flail conditioner hood adjustment crank (if equipped).
- ☐ Grease (repack) the wheel bearings.
- ☐ Change the fluid in all four of the swivel gearboxes.
- ☐ Change the fluid in the bevel gearbox.
- ☐ Change the fluid in the conditioning roll drive gearbox.
- ☐ Change the fluid in each of the cutterbar modules.

When all of the relevant items are checked, the 50 hour inspection and service is complete.

Machine model: _____	Product Identification Number (PIN): _____
Owner signature: _____	Dealer signature: _____
Date: _____	Date: _____

First 50 hour service record – Dealer copy

Check and perform each of the following maintenance items to complete the first 50 hour maintenance service:

- (☐) Inspect and tighten hardware.
- (☐) Check the drive belt tension on the conditioner.
- (☐) Grease the primary Power Take-Off (PTO) assembly.
- (☐) Grease the swivel hitch trunnion assembly.
- (☐) Grease the swivel hitch trunnion
- (☐) Grease the secondary PTO assembly.
- (☐) Grease the cross-header drive PTO shaft.
- (☐) Grease the Power Take-Off (PTO) overrunning and friction slip clutch.
- (☐) Grease the cutterbar drive shaft.
- (☐) Grease the conditioning roll drive shafts and bearings.
- (☐) Grease the tongue pivot pin.
- (☐) Grease the wheel arms and header lift arms.
- (☐) Grease the roll conditioner roll pressure adjustment crank (if equipped)
- (☐) Grease the flail conditioner hood adjustment crank (if equipped).
- (☐) Grease (repack) the wheel bearings.
- (☐) Change the fluid in all four of the swivel hitch gearboxes.
- (☐) Change the fluid in the bevel gearbox.
- (☐) Change the fluid in the conditioning roll drive gearbox.
- (☐) Change the fluid in each of the cutterbar modules.

When all of the relevant items are checked, the 50 hour inspection and service is complete.

Machine model: _____

Product Identification

Number (PIN): _____

Owner signature: _____

Dealer signature: _____

Date: _____

Date: _____

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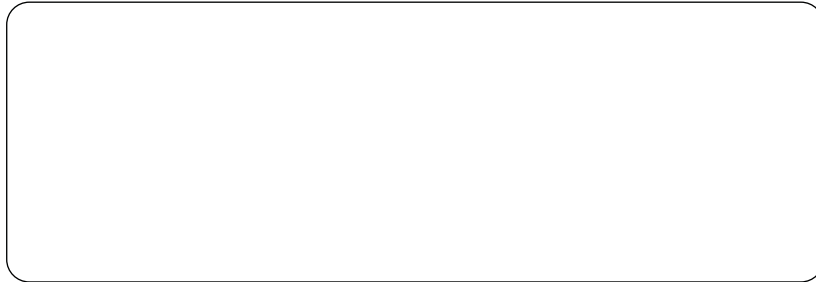
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Dealer's stamp



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Availability of some models and equipment builds varies according to the country in which the equipment is being used. For exact information about any particular product, please consult your New Holland dealer.



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